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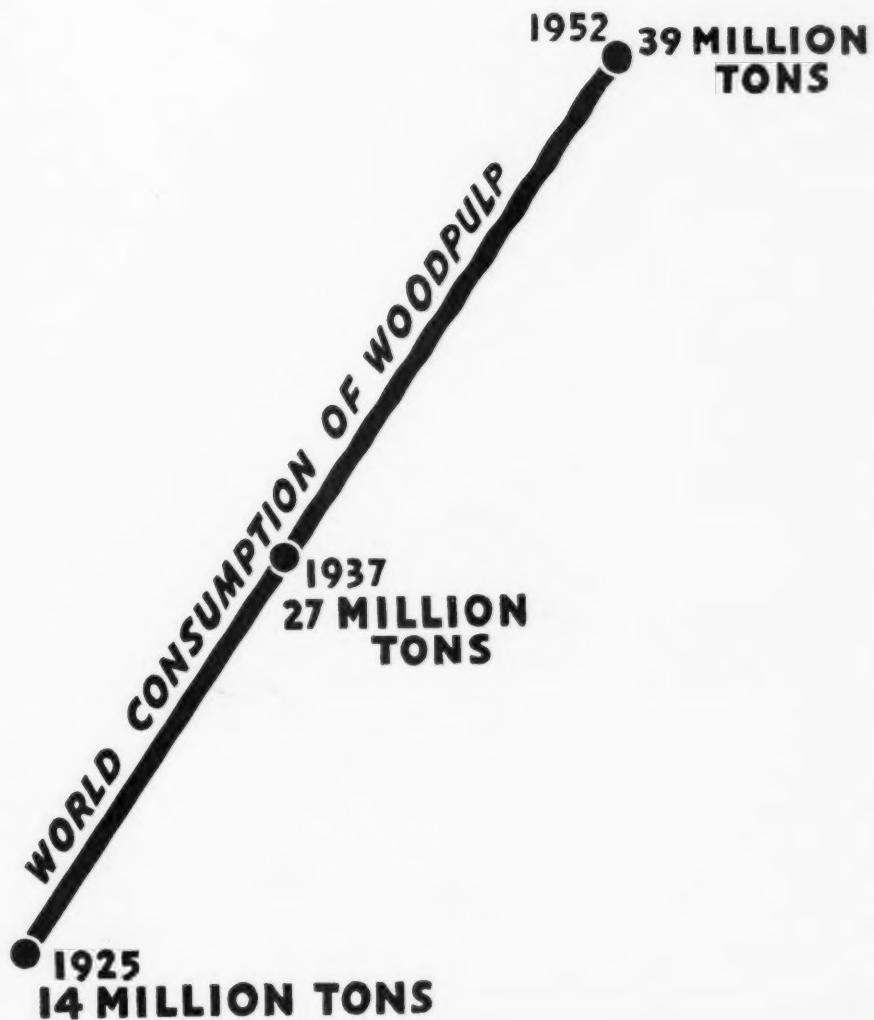
# WORLD Review Number

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Vol. 27 August 1, 1953 No. 8





level dyeing ...

good lightfastness



## DIRECT CHINOLINE

This brightest and greenest direct yellow offers level dyeing, excellent solubility and good lightfastness.

DIRECT CHINOLINE is used to produce a variety of yellows—from a pastel tint to an intense canary in bond, book and cover papers.

DIRECT CHINOLINE also produces bright greens in combination with Quinol Blue BP Dustless.



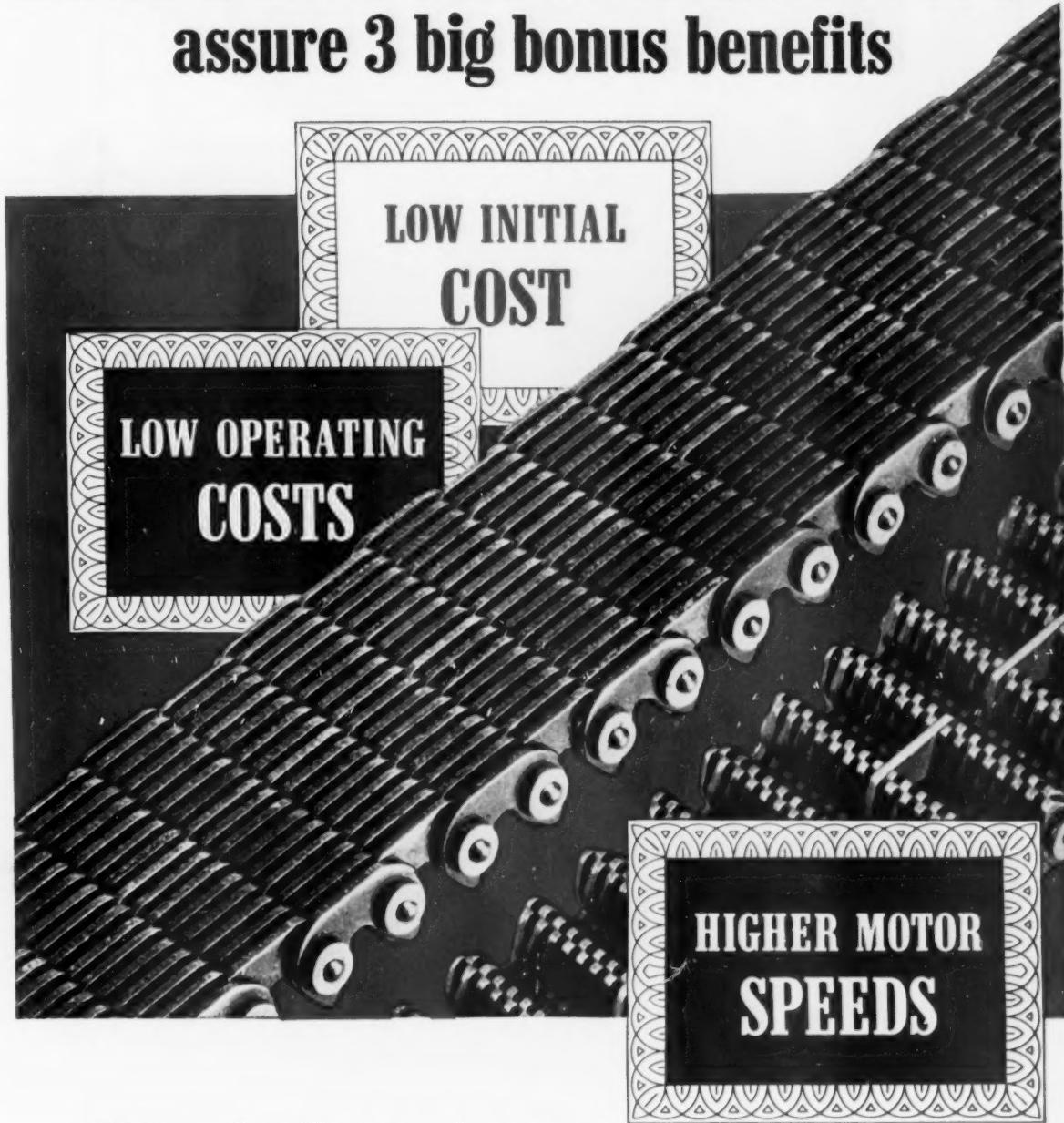
*AMERICAN Cyanamid COMPANY*

CALCO CHEMICAL DIVISION, DYESTUFF DEPARTMENT  
BOUND BROOK, NEW JERSEY

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# LINK-BELT Silent Chain Drives assure 3 big bonus benefits



WHEN you buy a drive, you expect it to operate efficiently throughout its entire life. And with Link-Belt Silent Chain, you're assured of better than 98% sustained efficiency throughout its many years of service! What's more, these positive, no-slip drives are low in first cost . . . low in operating costs. And, with their ability to operate at higher speeds, you can reduce your investment in motors and controls. Link-Belt Silverstreak Silent Chain Drives are available from fractional to thousands of hp. You can obtain  $\frac{1}{2}$  to 50 hp drives (ratios of 1:1 to 7:1) from stock. Get complete information from your Link-Belt sales office or distributor.

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# PAPER



**Production and  
Management Magazine  
of the Industry**  
**August 1, 1953**  
**Vol. 27—No. 8**

"The Cellulose Age"

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1953 Review Number

### Facts from 40-Odd Nations—Color, Too

This WORLD REVIEW NUMBER, 1953 Edition, of PULP & PAPER, is recognized as the most complete reference book of its kind published on the pulp and paper industry.

It again this year contains comprehensive sections on the United States and Canada. Herein the reader will find facts and figures on every important aspect of the industry in those two countries. Furthermore, in other sections indexed fully on this page, he will find interesting facts and figures on pulp and paper in every country in the world where it is made, from Sweden and Finland to Australia, from South Africa to India and the Argentine.

Colorful, original reports from presidents of pulp and paper companies and other personalities in those industries, are collected here in the only volume of this kind ever published. Some 40 nations are dealt with separately. Others of lesser importance are discussed in groups.

### World Trends in Woodpulp

But in this 1953 issue is also an outstanding new feature—the most complete world-circling report that has been compiled on facts about woodpulp, which now has assumed the stature of a prime basic world marketing commodity.

Comparatively few persons, even in this industry, excepting those who deal in woodpulp day by day, realize the new dominant and potentially potent position of North American pulp in the world marketplaces. Its significance grows so rapidly, few observers have been able to keep pace. The development of the woodpulp industry, the only major industry based upon a renewable resource, has had a far-reaching, stabilizing and beneficial effect upon the husbandry and efficient utilization of world forest resources.

The visible and probable trends in woodpulp are recorded here, with valuable reference material including a new directory of pulp producers.

### Long Term Growth—It Can't Miss

Even if suddenly the North American mills were to curtail all their research on new paper products, the industry would still be confronted with a steadily growing demand. For the Census Bureau says that the United States, biggest user by far of American and Canadian pulp and paper, will be a nation of 193,000,000 people in 1975. That's only 22 years away. In the past six years, the United States industry has increased over 60 percent—population only 10 percent. And as for research, just the opposite is happening. Mills are intensifying their search for new uses and new markets. And the uses of paper and woodpulp continue to broaden. New baby diapers. Curtains and carpets. New containers, even for heavy, big machinery. And even cellulose pills for reducing weight!

### Aids in Using This Review Number

Throughout this issue of the WORLD REVIEW NUMBER, most of the statistical tables are in "short tons"—for pulp and paper—or in "cords"—for wood. These are standard units of measure in North America and are commonly understood in many other countries.

However, in many countries "metric tons" and "cubic meters" are standard.

It is a very easy matter to convert the statistics in this REVIEW from one measurement standard unit to another.

To get a rough estimate of metric tons, simply multiply short tons by 0.9. Or to change metric tons to short tons, simply multiply metric tons by 1.1. If you want more exact equivalents, carry out the multiplication as indicated below.

Here are other and more complete conversion factors you may use:

A short ton equals 2,000 lbs.; A metric ton equals 2,204.6 lbs.; Multiply metric tons by 1.1023 to obtain short tons; Multiply short tons by .90718 to obtain metric tons; A kilogram equals 2.2046 lbs. (there are 1,000 kilograms in a metric ton); 2,000 lbs. in a short ton; Multiply a kilogram by 2.205 to obtain pounds; One cord equals 2.55 cubic meters (a meter equals 39.37 inches), or 90 cu. ft. of wood, not counting air space. But usually wood and air space are counted, which would be 128 cu. ft. or 3.62 cu.m.; A hectare equals 2,000 square meters, or 2.47 acres; two cords are generally accepted as equal to 1,000 bd. ft.

# Asten DRYER FELTS



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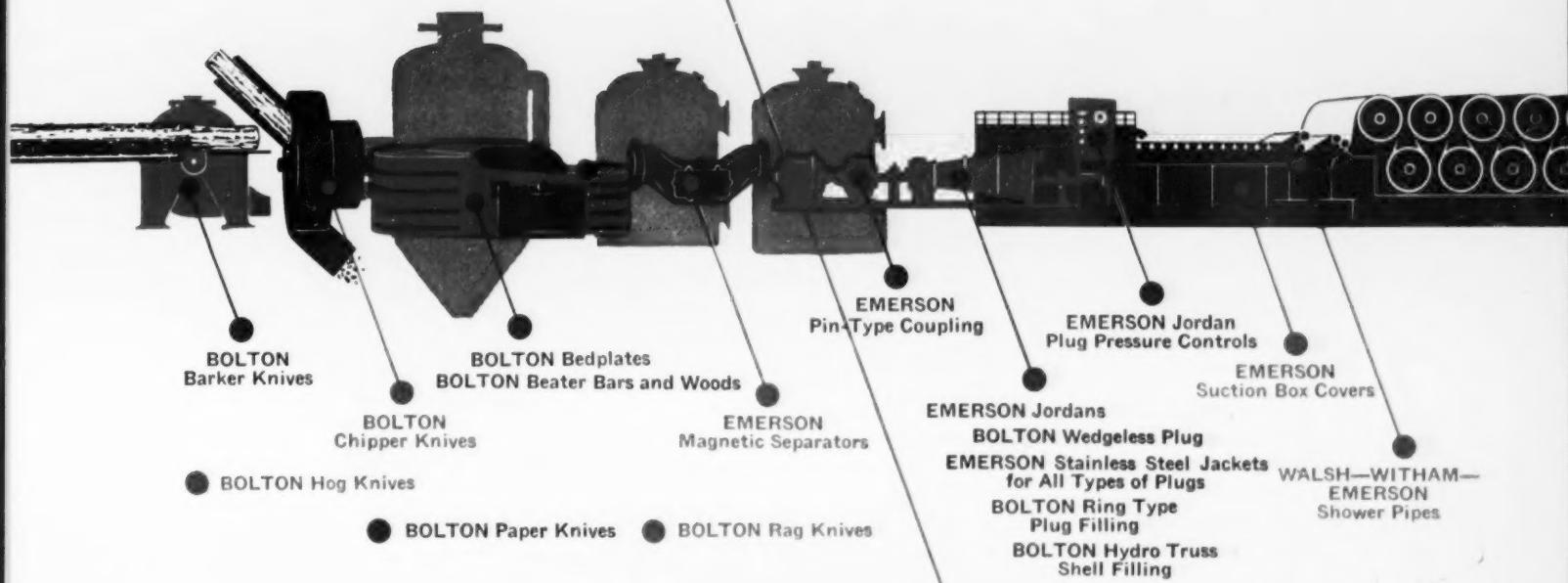
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VALLEYFIELD, QUEBEC

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Bolton quality is old, yet forever new — old because, since 1905, it has been synonymous with the best in materials, manufacturing processes and service — new because Bolton quality keeps always a step in advance of the industry's ever-changing requirements and methods. He who buys Bolton, buys best.

The Bolton representative in your area is prepared to tell you about Bolton's services. They include engineering advice based on years of experience in the paper industry, complete stocks on hand to supply needed items quickly. Our plant is prepared to design and produce products to fit your special requirements.

The key spots where Bolton quality serves the paper mill are shown below.

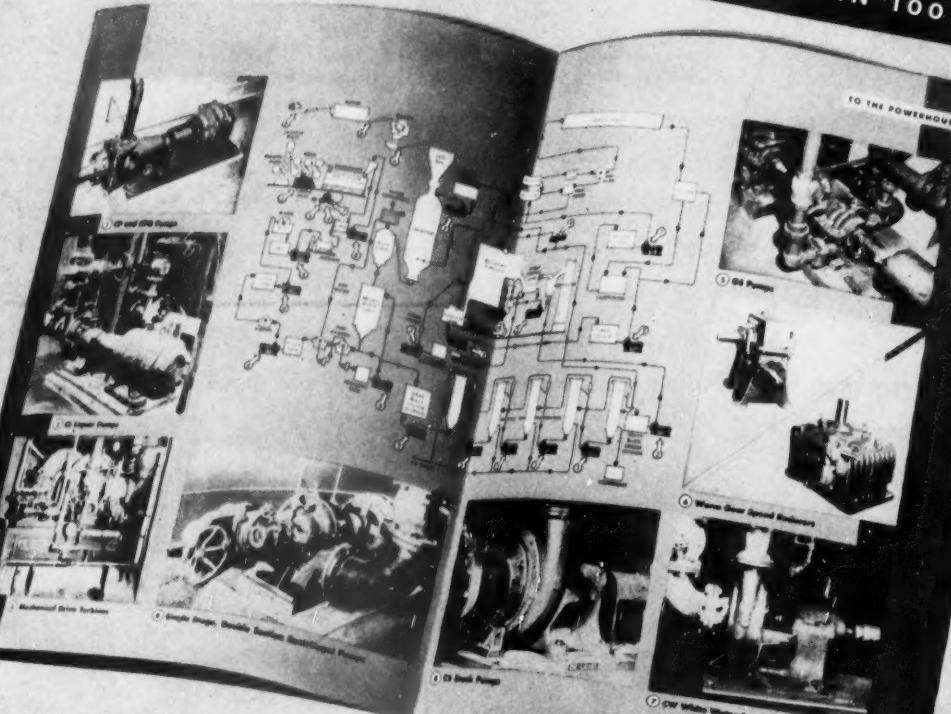


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*for the paper mill,  
for the powerhouse*

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PULP & PAPER

7



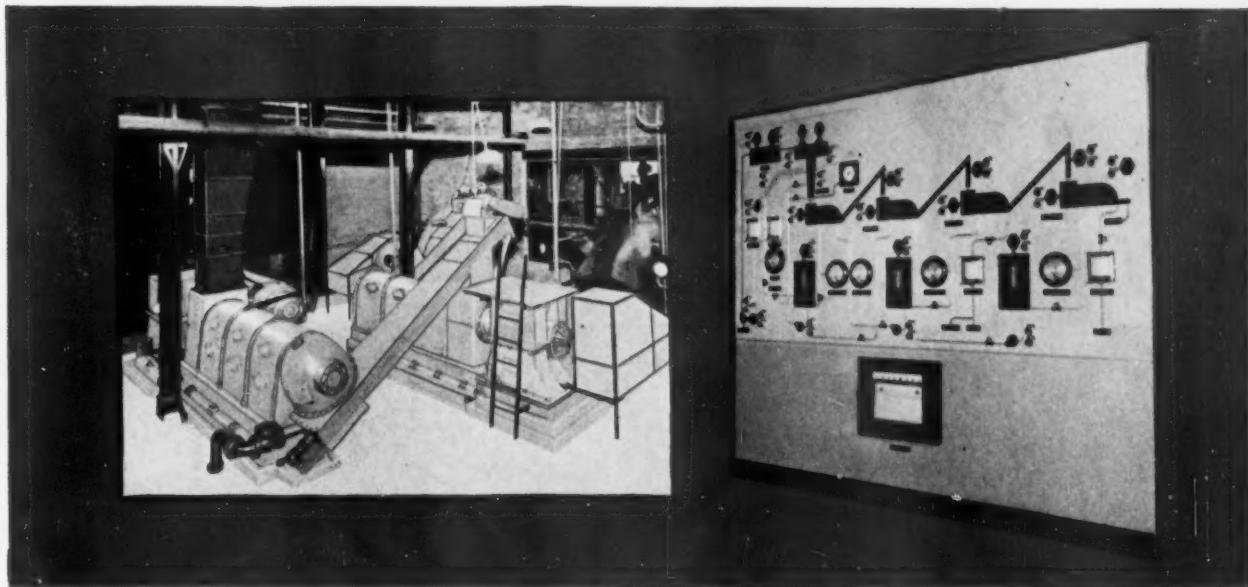
Photomicrograph of raw pulp.

SUTHERLAND

PRESSURE  
WASHING  
SYSTEM

saves . . . .

Photomicrograph of pressure washed  
kraft pulp. Note curling of fibers.



## • • chemicals, heat, water, power, space

Today's most modern and most effective method for washing pulp, the outstanding features of the Sutherland Pressure Washing System make conventional systems obsolete. A product of Sutherland engineering and design, the Sutherland Pressure Washing System gives you stronger, cleaner pulp... at savings the profit-minded mill owner cannot afford to overlook.

### EFFICIENT OPERATION

Taken from a conventional blow tank and thickened to 12% in an underpass thickener, the pulp is fed into a series of specially designed presses (above left). Here the pulp is washed on a counter-current principle, alternately squeezed to about 36-38% dry then diluted 12-14% with liquor from the succeeding press. Strong liquor draining from the thickener is sent to the evaporators of the recovery system. Completely automatic in operation, the entire system can be operated by one man from a single control panel (above right).

### REDUCED OPERATING COSTS

Only the Sutherland Pressure Washing System offers these cost-saving advantages:

**CHEMICALS:** positive squeezing action insures uniform separation of liquor from pulp, higher chemical recovery.

**HEAT:** use of pressure instead of vacuum results in better blow-heat recovery... eliminates flashing of steam.

**WATER:** less than 200 g.p.m. required for a 300-ton system.

**POWER:** consumption ranges from 1.36 horsepower per air-dry ton for a three-stage system to 1.71 for four stages. Most of this power is consumed in doing work on the pulp (note curling of fibers in photomicrograph), not in pumping liquor through the system. There is a definite increase in strength with pressure washed pulp.

**SPACE:** compact presses can be arranged in a variety of space-saving ways to suit individual mill requirements. High consistencies and foam-free operation eliminates need for over-size transfer and settling tanks.

Sutherland Pressure Washing Systems can be furnished in four and five stages to fit the needs of the individual mill... at a capital investment appreciably below that of conventional systems. Write for a copy of "Pressure Washing", without obligation... or consult your Sutherland representative about the Sutherland Pressure Washing System that will cut operating costs at your mill.



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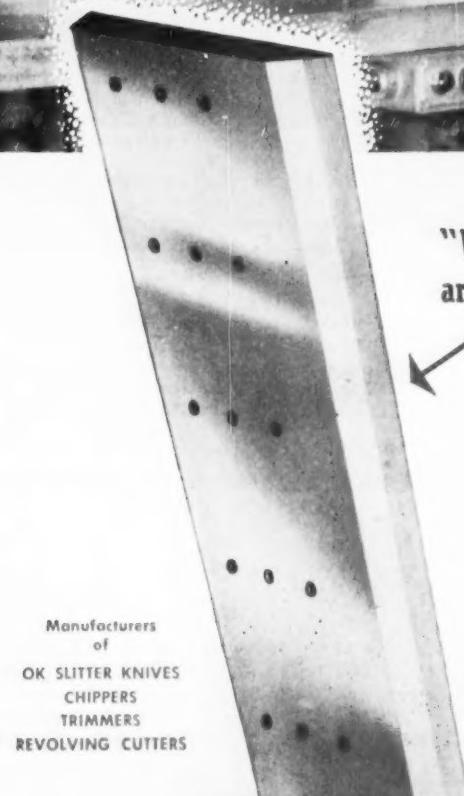
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it's **OK** let'er go!



Photo courtesy of  
The Todd Company, Inc.,  
Rochester, N. Y.



"Wearing qualities of OK SUPER paper trimming knives are excellent - we are satisfied with performance"

—reports The Todd Company, Inc., Rochester, N. Y.

This famous Company, the nation's leading supplier of safety checks, etc. to the Banking Industry use Ohio Knives on their paper trimming machines to insure supreme accuracy in trimming . . . to deliver longer runs without regrinding. Actual tests have proven OK Knives deliver 25% to 40% longer service. Made of the finest alloy steel, OK Knives are specially hardened to stand the heaviest cutting and still hold an ultra keen edge.

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Write Dept. F for  
comprehensive literature.

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**THE OHIO KNIFE CO.**

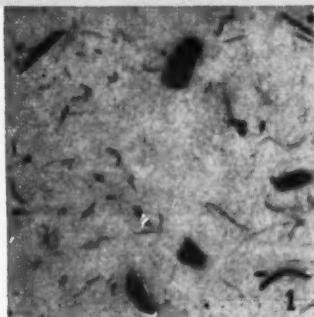
CINCINNATI 23, OHIO

# There is only one BEST!

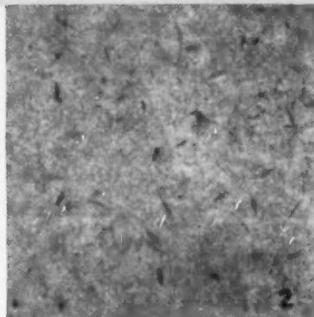
**CURLATOR**  
is the ONLY  
Mechanical  
Device that  
will produce  
from fine  
screen rejects

- ✓ A CLEANER PULP
- ✓ OF INCREASED YIELD
- ✓ WITH INCREASED TEARING STRENGTH
- ✓ WITHOUT AFFECTING FIBER LENGTH

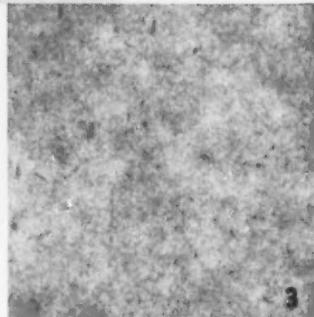
SEE THE DIFFERENCE... These unretouched photographs are actual size.



Paper made with fine screen rejects. Note dirt, shives and large fiber bundles.



Paper made with rescreened rejects. Only the largest particles, 8% of the rejects, are removed. Note the large number of shives which passed through the screen.



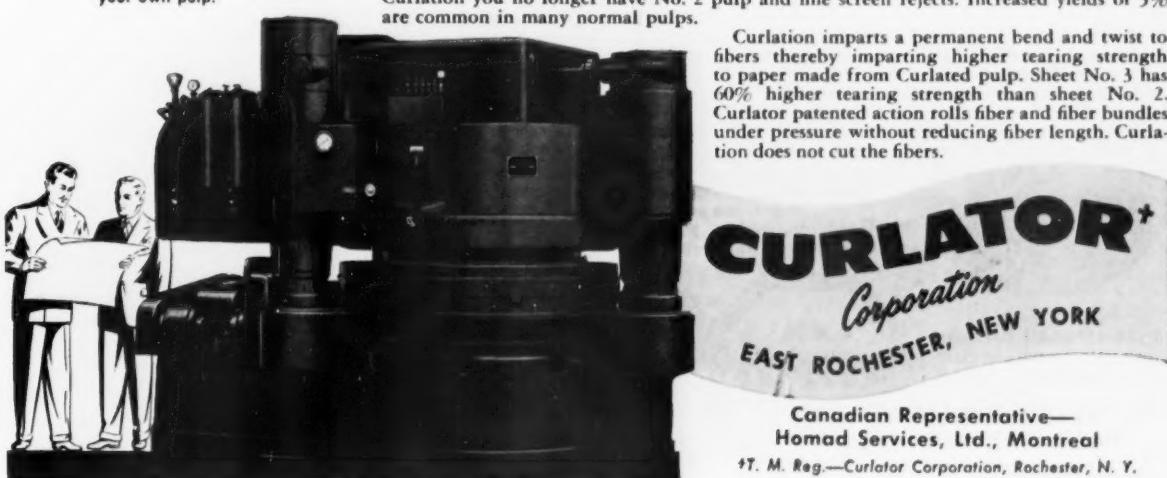
Paper made with screened, Curlated rejects. 99.4% of the fine screen rejects are in this sheet. Note improvement in cleanliness as a result of Curlation.

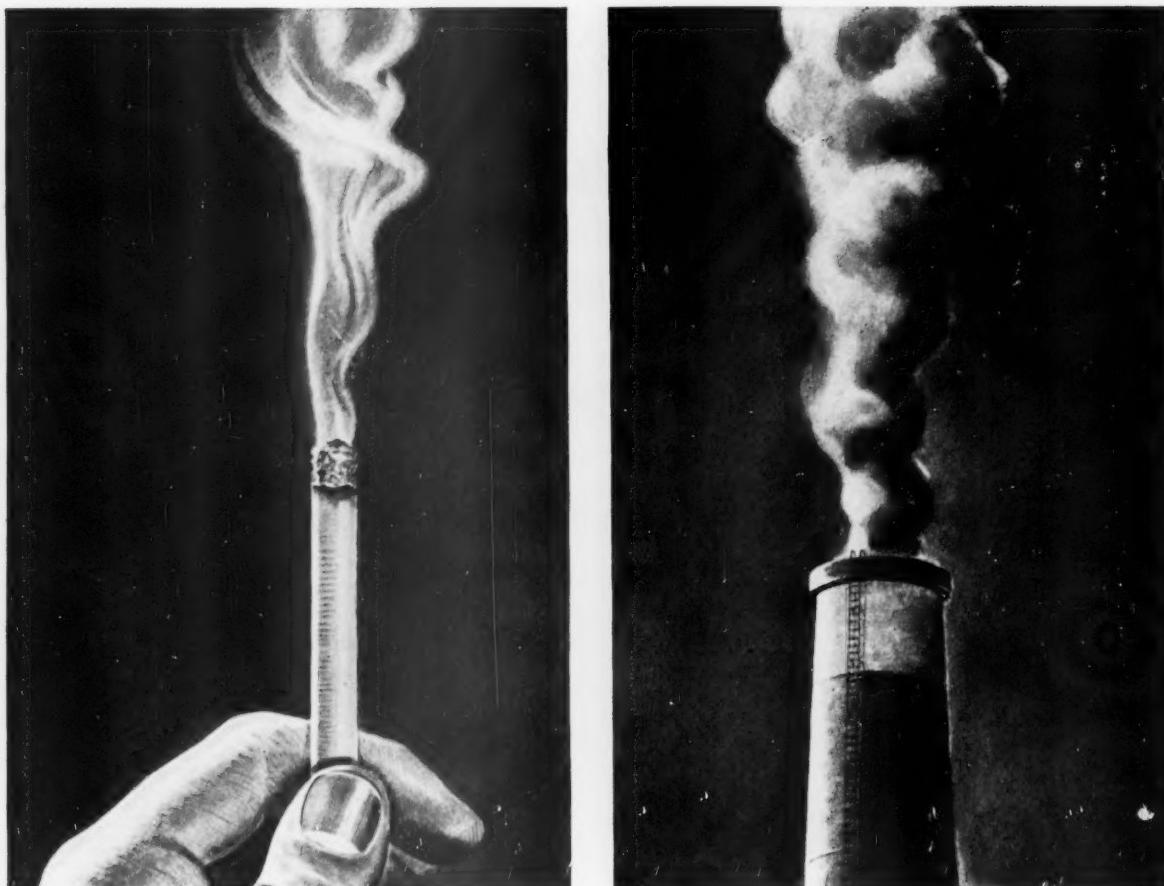
*Write* for more detailed information. See the results obtained from your own pulp.

Actual mill operation proves Curlation eliminates shives and separates the individual fiber bundles, as well as reducing the sizes of dirt particles. This permits a large portion of the dirt to be removed during washing and thickening operations.

Curlation increases yield by converting shives and fiber bundles into No. 1 pulp. With Curlation you no longer have No. 2 pulp and fine screen rejects. Increased yields of 5% are common in many normal pulps.

Curlation imparts a permanent bend and twist to fibers thereby imparting higher tearing strength to paper made from Curlated pulp. Sheet No. 3 has 60% higher tearing strength than sheet No. 2. Curlator patented action rolls fiber and fiber bundles under pressure without reducing fiber length. Curlation does not cut the fibers.



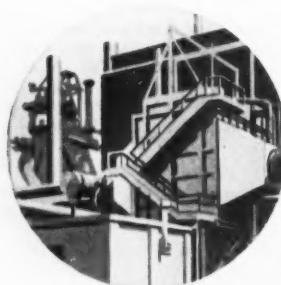


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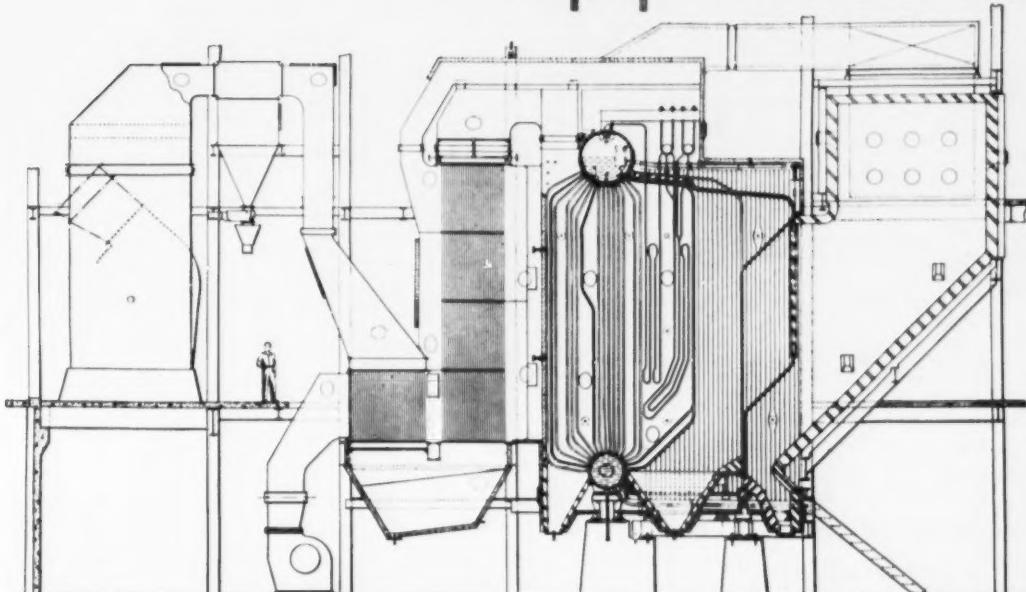
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## to serve pulp mill in ALASKA



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P-779

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**MORE PAPER**

**with**

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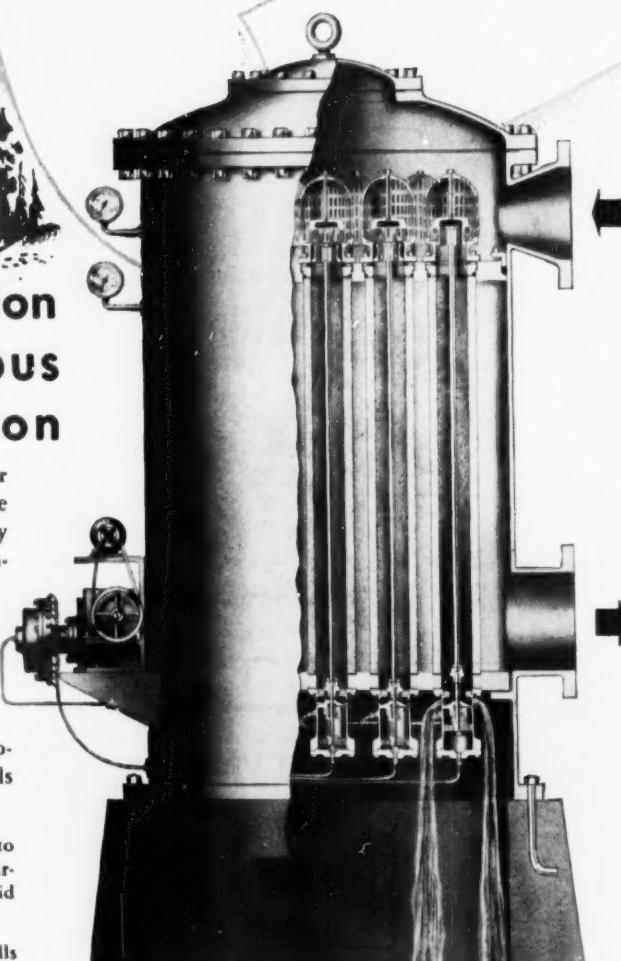
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for your continuous  
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*Write for your copy of the new 20 page booklet on water filtration in the Pulp and Paper Industry, Bulletin No. 691.*

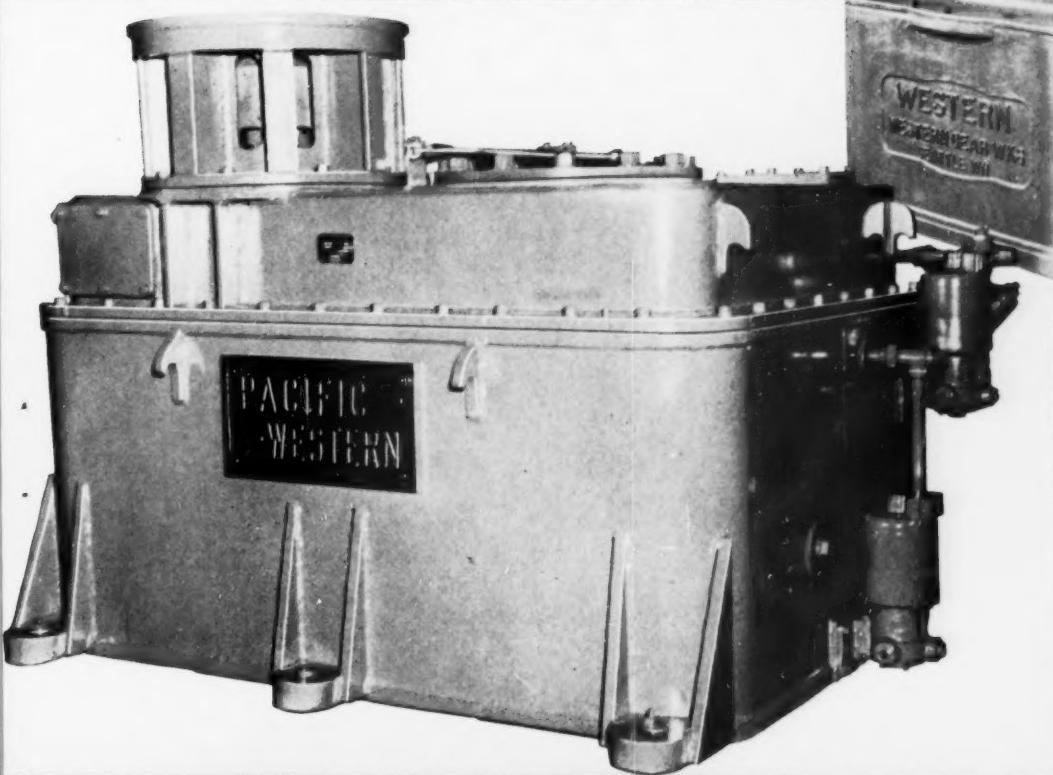
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**210 EAST PARK DRIVE, BUFFALO 17, N. Y.**

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built for years of economical,  
heavy-duty service!



Pacific-Western TV-64, vertical triple reduction drive unit

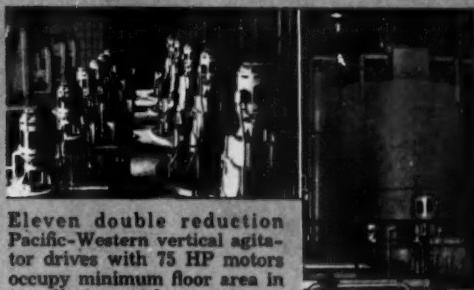


Pacific-Western DV-60, vertical double reduction drive unit

**Here are 11 Reasons why  
Pacific-Western Agitator Drives  
are best for YOUR needs!**

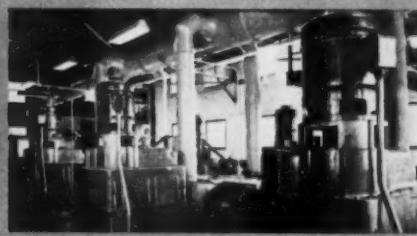
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Eleven double reduction Pacific-Western vertical agitator drives with 75 HP motors occupy minimum floor area in installation with capacity of 450 tons of bleached pulp per day. Above right shows triple reduction units, part of same installation, mounted high on chlorination tower, and in foreground on low density caustic tower.

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Address your request  
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Double reduction agitator drives for caustic bleachers . . . 75 HP motors; 70.85 : 1 ratio; 1750 RPM.



Pacific-Western Type DV-60 agitator drives shown in pulp bleaching tank service in a Pacific-Northwest mill.

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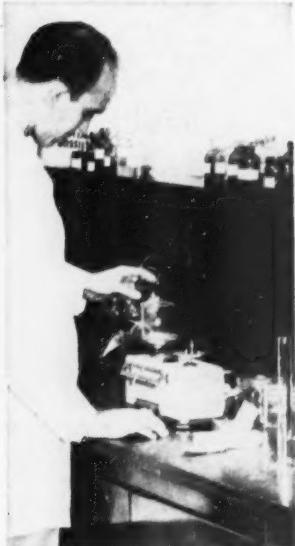
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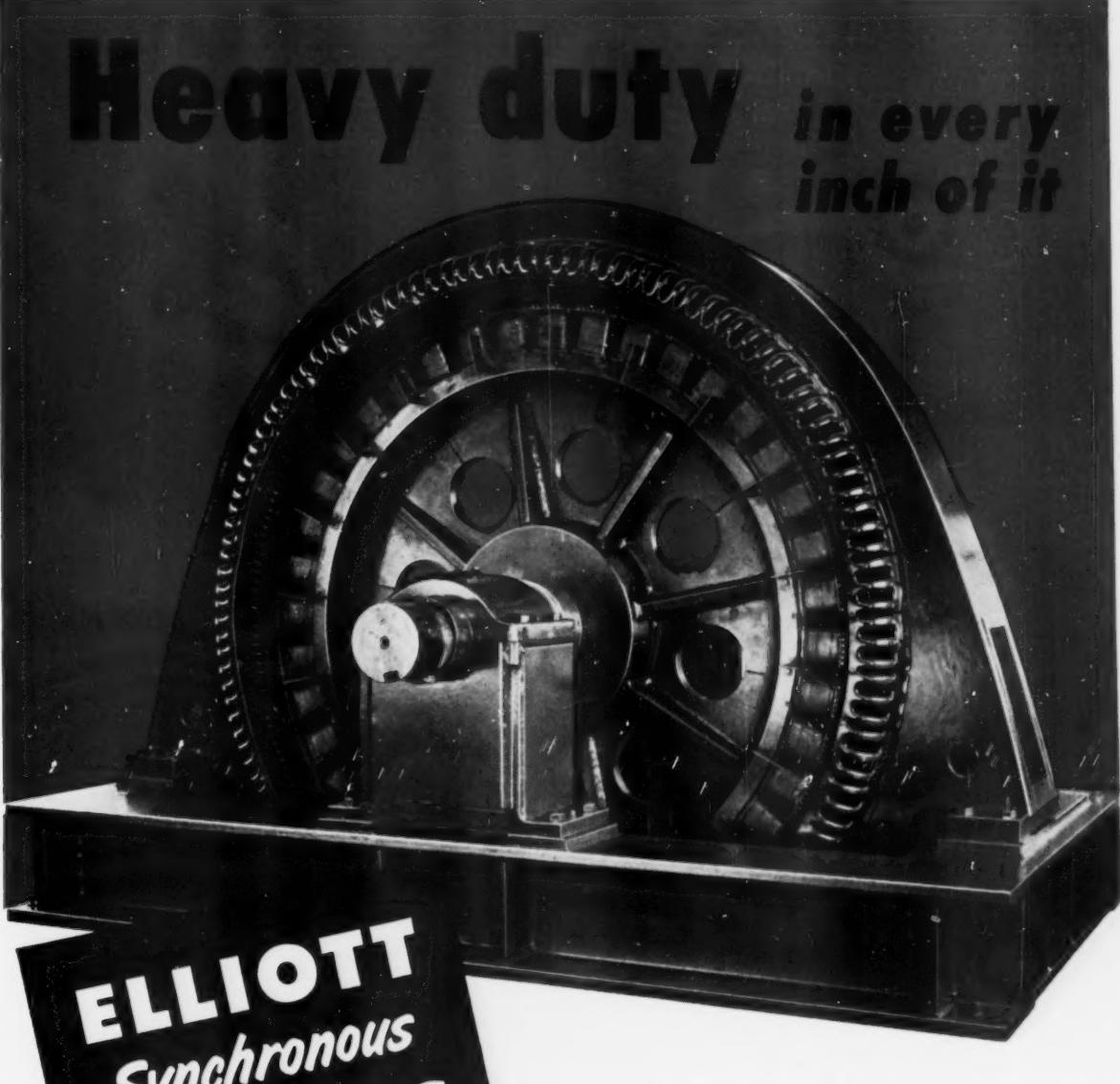
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PULP & PAPER



**STONE & WEBSTER  
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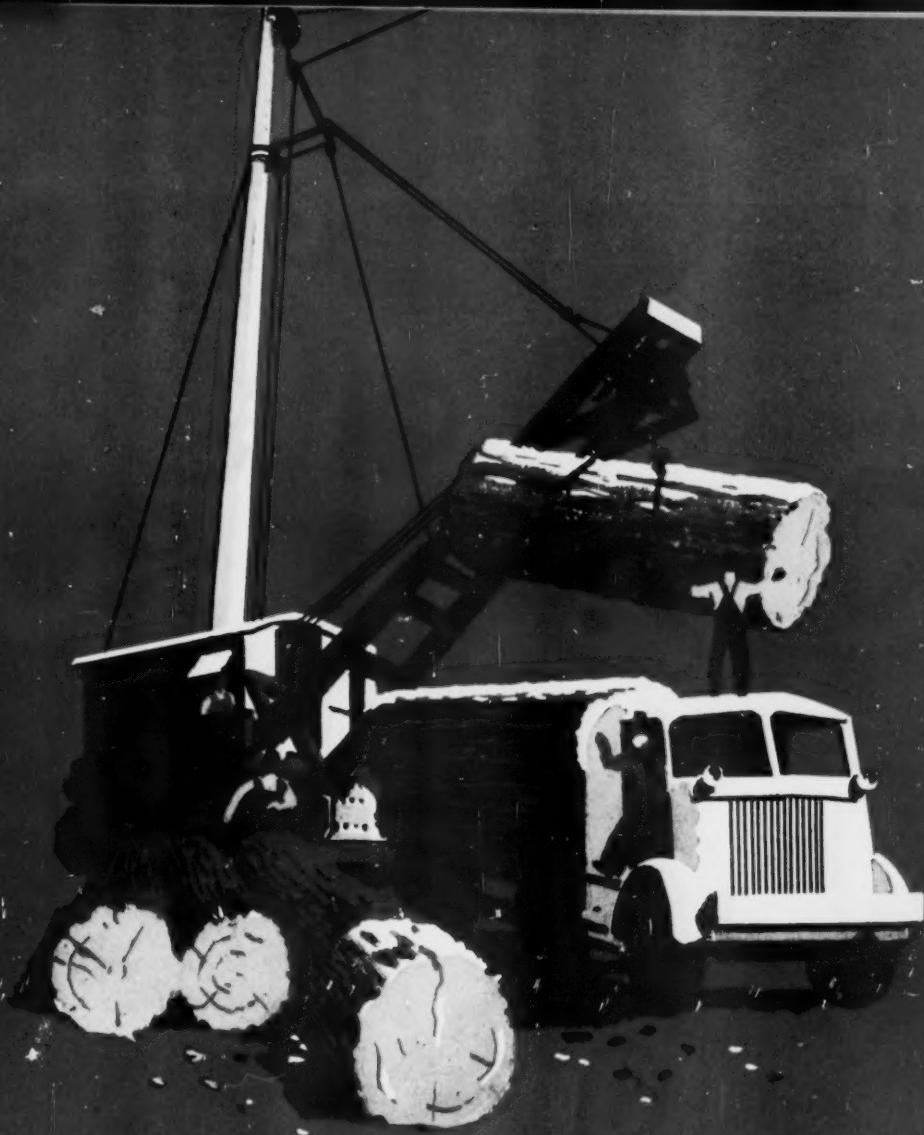
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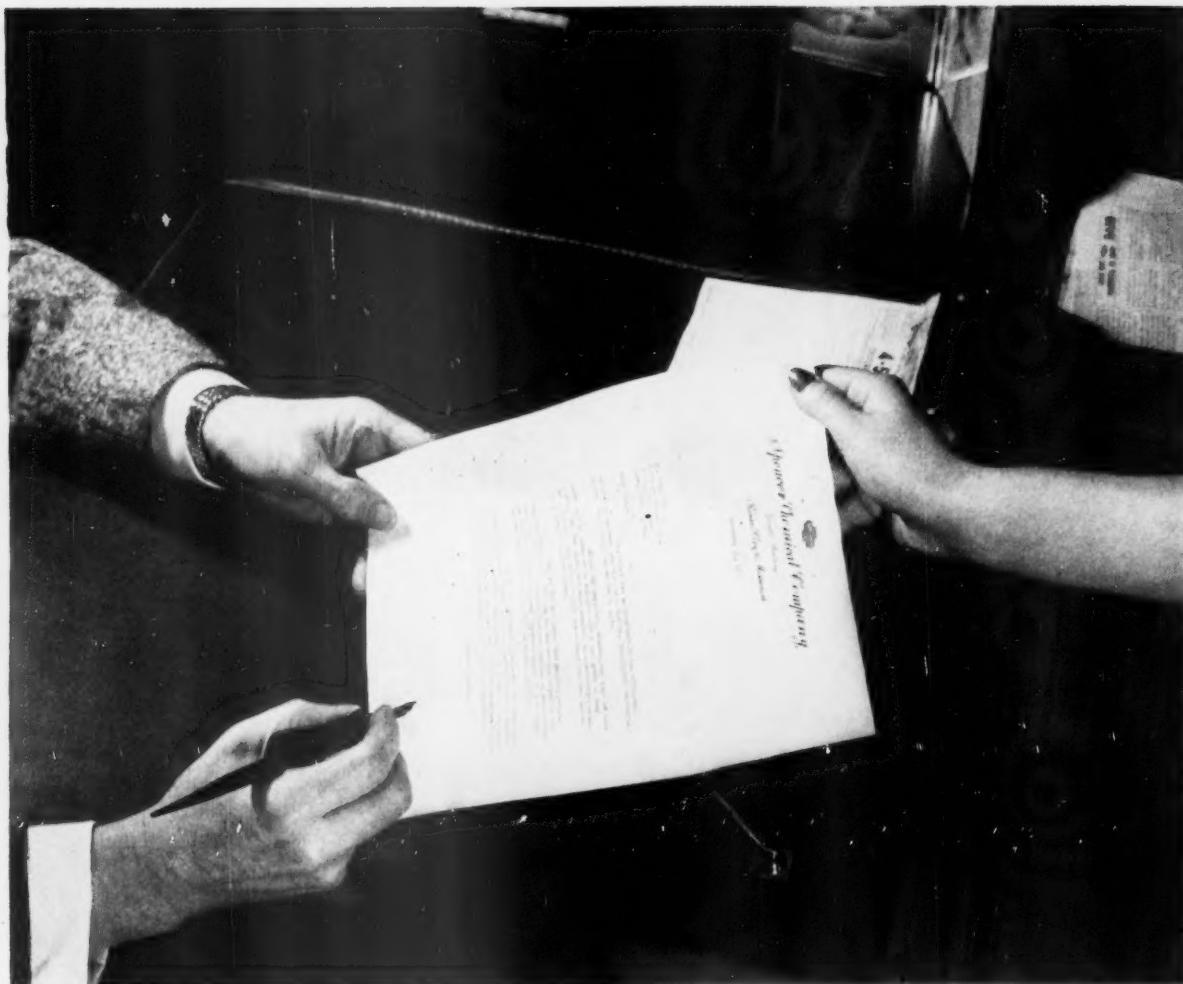
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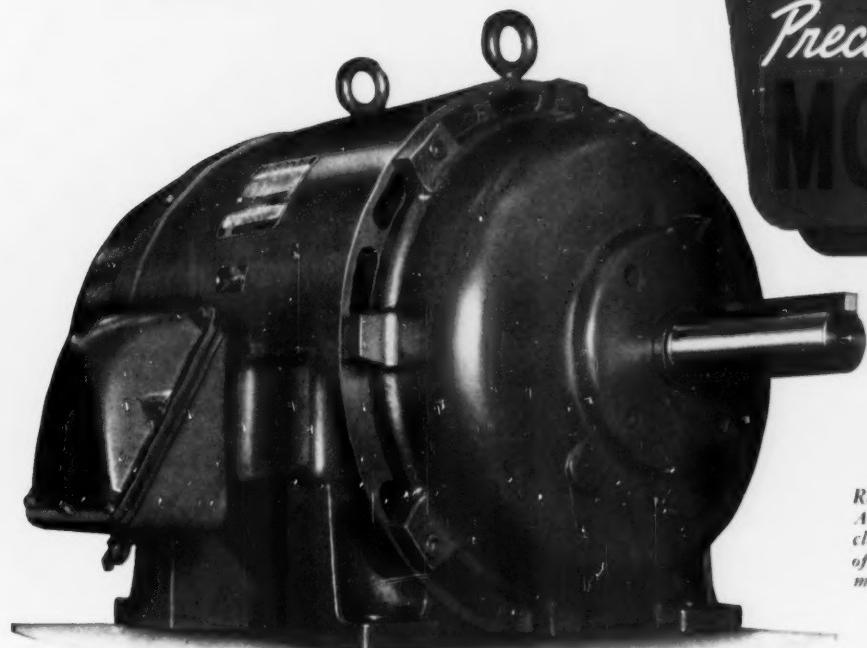


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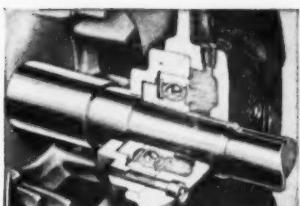
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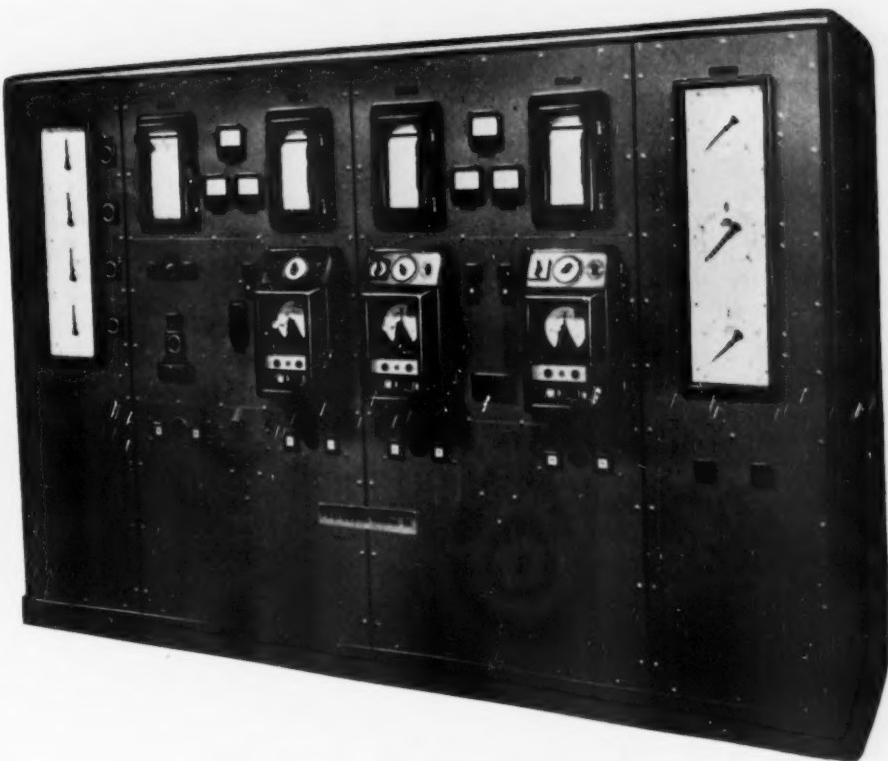
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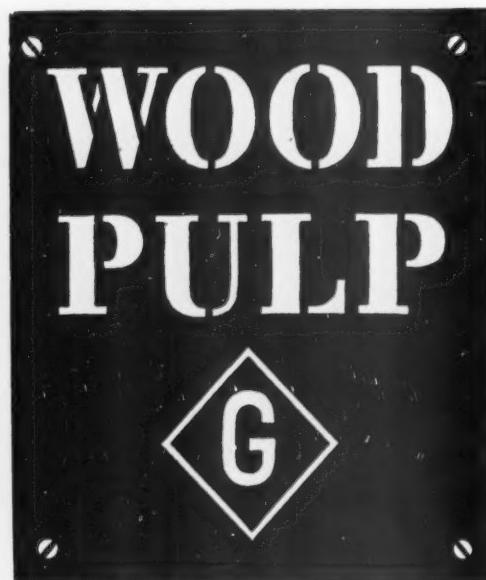
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# WORLD PULP TRENDS

## WHAT'S AHEAD FOR BASIC COMMODITY?

**WOODPULP AS A MANUFACTURED PRODUCT** is one of the world's most important commodities. The total value of pulp produced in 1952 exceeded \$5½ billion.

Total value of market pulp was approximately one and one-quarter billion dollars with close to one billion dollars worth of pulp crossing international boundaries to figure heavily in world trade.

Woodpulp ranks first as a manufactured commodity in Canada and the Scandinavian countries, and plays a most significant role in the economy of the United States—world's greatest consumer of the product. And as the world continues its recovery and rehabilitation from its worst war in history, woodpulp may confidently be expected to become a still more important commodity.

As observed from the beginning of the 20th century, there has been a marked tendency for woodpulp production to move sharply upwards during the years of peace, unless the economy is disturbed by major business depressions. This has resulted in the principal pulp producing areas, Europe and North America, increasing output from 8.82 million tons in 1913 to 33.90 million tons in 1952, with the only breaks in the upward surge resulting from World Wars I and II, and from the depression of the early 1930s.

### Woodpulp Production—Europe and North America

	(millions short tons—2000 lbs.)					
	1931	1921	1929	1937	1946	1952
Europe	5.1	3.3	8.7	12.5	6.2	8.8
N. Amer.	3.7	4.4	8.7	11.5	16.9	25.1
Totals	8.8	7.7	17.4	24.0	23.1	33.9

In examining these figures covering the first half of the century, it can be seen that pulp production of North America rose by almost eight times, and total production for the two producing areas increased over four times. The trend has strongly underlined the historical tendency for sharp peacetime increases in production and consumption of this commodity.

### Raw Material Supply

The student of woodpulp in world trade must begin with the basic raw material—the forests of the world. The 9 billion-plus acres of forested area in the world are distributed approximately as follows:

	Acres in Forest
Europe	313,000,000
U.S.S.R.	2,273,000,000
North, Central America	1,887,000,000
South America	1,843,000,000
Africa	2,266,000,000
Asia	1,166,000,000

Of this area, practically all in Europe is accessible and productive; an estimated one-third is accessible and productive in the U.S.S.R.; one-third in Canada and two-thirds in the U.S. for a total of over 700,000,000 productive acres in North America; one-tenth is available in South America; and only very small fractions in Africa and Asia. Of the European total of 313,000,000 acres of forested land, approximately 126,000,000 acres is in the Scandinavian countries and is productive. (These totals are based on United Nations FAO surveys and include lands which have been recently clear cut or burned, but which will be reforested in the near future.)

As pulp producers for world trade, the only present areas of consequence are three Scandinavian countries and North America. Since 1938 Scandinavian production from its forest area has remained fairly stable—ranging from six to seven million tons of woodpulp annually—while that of North America has gone from a yearly production of 8,350,000 tons in 1928 to a high of 25,450,000 in 1951.

From the point of view of utilization of forest resources, the Scandinavian countries could maintain a somewhat higher level of woodpulp production without depletion of reserves; Canada's resources seem almost limitless; and even the U.S., through sound forest management policies, has reached the point where there

seems to be general agreement there is plenty of wood for all foreseeable needs.

### Woodpulp Markets

For the first time in history, North America, in 1952, became a woodpulp exporter, rather than an importer. North America has come close to achieving self-sufficiency in woodpulp supply at present consumption levels, and with some grades will become an active competitor for business in South America, Africa, Asia and the Far East—and even Europe. Examination of the map of world pulp trade, appearing in this section, tells the story of woodpulp flow, and shows significantly the aim being drawn on the South American market from the three pulp producing areas, and the scattered shots beginning to hit the potential markets of the Pacific Area and the Far East.

World demand for woodpulp is dependent upon many things. It is dependent upon economic recovery in Europe. It is dependent upon growth of education and literacy in Asia, Africa and the Orient and the inevitable demand for paper that accompanies learning. It is dependent upon the general smoothing out of channels of world trade so countries that want woodpulp and its products can buy. It is dependent most of all upon the ability of the world to settle its problems in Asia and Europe, and to remain at peace.

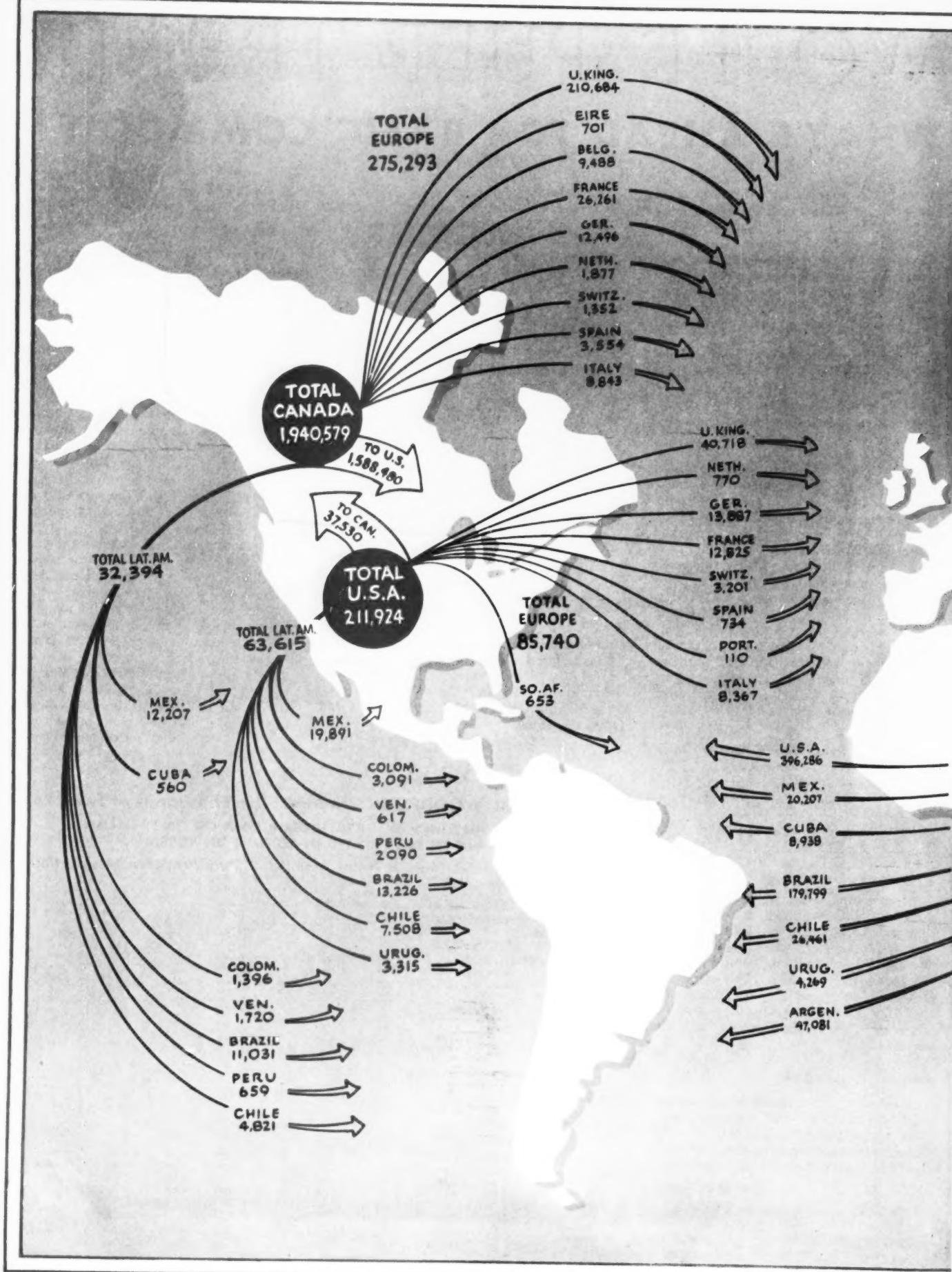
Continued on page 28

### FREE WORLD WOODPULP SUMMARY (In Thousands of Short Tons)

(DOES NOT INCLUDE DATA FROM RUSSIA OR ITS SATELLITES  
WHICH ARE PRINTED IN SECTION ON RUSSIA)

Sources: Canadian Pulp & Paper Assn., U. S. Pulp Producers Association.

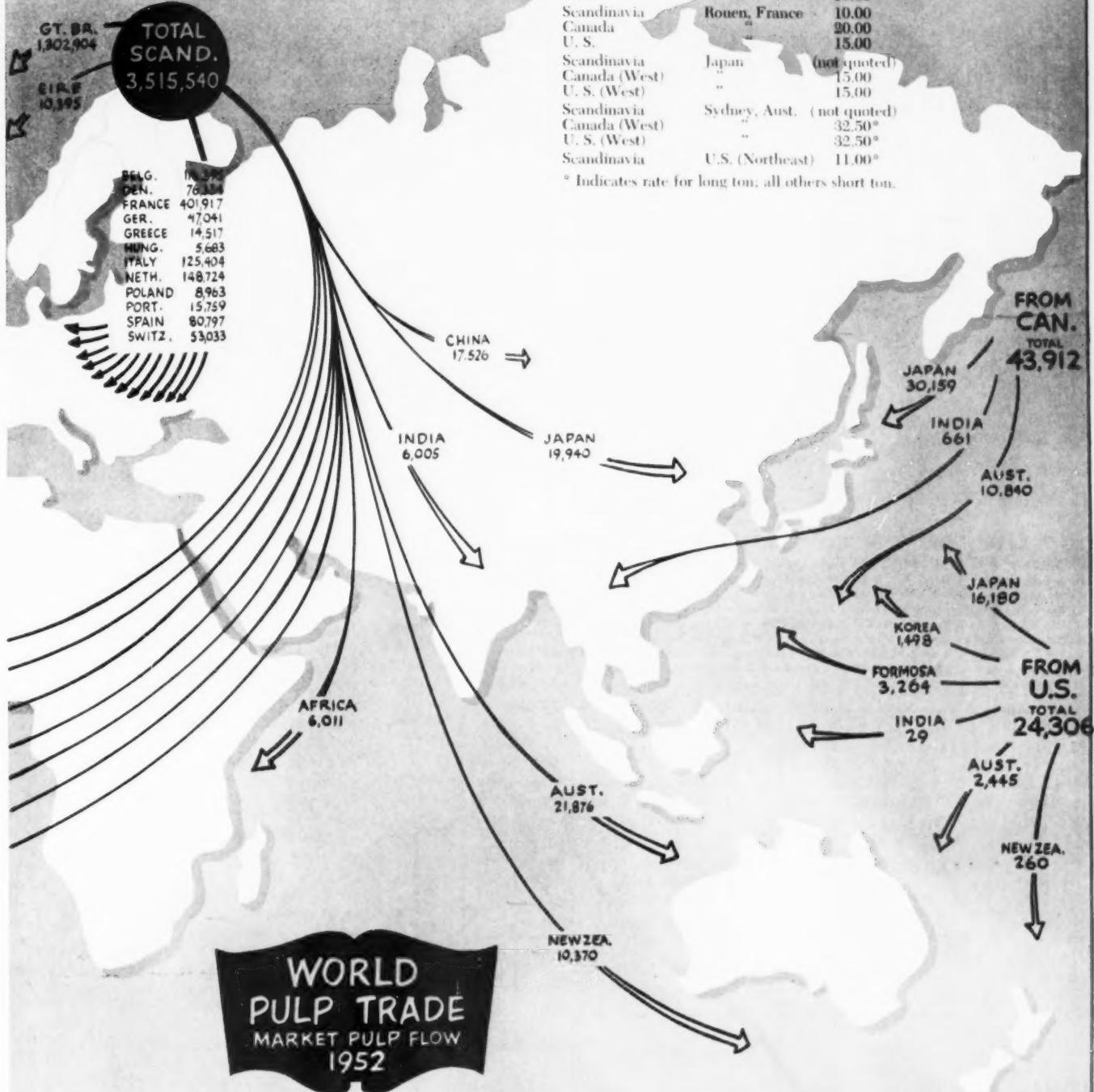
	1951			1951		1952			1952	
	Capacity	Production	Consumption	Imports	Exports	Capacity	Production	Consumption	Imports	Exports
<b>TOTAL CHEMICAL</b>	25,840	24,331	23,816	5,416	5,516	26,706	23,443	22,625	4,481	4,594
North America	17,385	16,822	16,503	2,062	2,123	18,630	16,471	16,081	1,725	1,887
Latin America	199	152	349	0	206	157	472	323	0	
Europe	7,280	6,597	5,568	3,822	3,393	6,811	5,916	5,054	3,309	2,705
Northern	5,457	4,962	4,695	16	3,215	5,608	4,402	1,449	8	2,550
Eastern	62	45	47	3	2	67	51	48	6	7
Western	470	392	2,496	2,156	7	503	374	2,055	1,749	10
Central	1,291	1,198	1,630	649	169	633	1,089	1,502	537	138
South Africa	20	20	21	2	0	22	22	22	1	0
Asia & Pacific	956	740	927	181	0	1,037	877	996	132	2
<b>TOTAL MECHANICAL</b>	15,090	13,386	13,314	3,267	1,259	14,891	12,357	12,559	1,021	1,026
North America	9,612	8,657	8,619	320	322	9,925	8,643	8,648	259	255
Latin America	185	163	174	22	0	200	168	190	22	0
Europe	4,541	3,959	3,932	923	937	4,002	2,880	3,954	232	281
Northern	2,837	2,421	1,496	0	927	2,848	1,387	880	0	773
Eastern	30	31	31	0	0	30	30	30	0	0
Western	737	641	1,482	879	2	742	624	1,289	709	1
Central	937	866	904	44	8	387	839	855	24	7
South Africa	23	23	22	0	0	23	23	23	0	0
Asia & Pacific	729	584	586	2	0	736	645	648	7	0
<b>GRAND TOTAL</b>	40,930	37,717	37,110	6,683	6,775	41,597	35,800	35,184	5,502	5,630



**WORLD PULP TRADE**  
Shipping Rates, May 1953

Producing Area	Destination	Freight Rate*
Scandinavia	Rio de Janeiro	\$30.00*
Canada	"	26.00*
U. S.	"	26.00*
Scandinavia	London	10.00*
Canada	"	14.00
U. S.	"	16.00
Scandinavia	Rouen, France	10.00
Canada	"	20.00
U. S.	"	15.00
Scandinavia	Japan	(not quoted)
Canada (West)	"	15.00
U. S. (West)	"	15.00
Scandinavia	Sydney, Aust. (not quoted)	32.50*
Canada (West)	"	32.50*
U. S. (West)	"	32.50*
Scandinavia	U. S. (Northeast)	11.00*

\* Indicates rate for long ton; all others short ton.



PULP & PAPER

It is easy for the producer of woodpulp to look at the figures on world consumption and discover that Asia and Africa, with many times the population, consume only one-twentieth as much woodpulp as North America. But that doesn't make a market, per se. First there must be the demand; then the wherewithal to buy; and, finally, peaceful channels of world trade to permit the flow.

The three Scandinavian countries exported 3,515,540 tons of woodpulp during 1952 with over 2 million tons (including the United Kingdom) going outside the boundaries of continental Europe. The ability to maintain this export pace and to service the expected increased demand for the product in Europe is the subject of a study prepared jointly by the Secretariats of the Food and Agricultural Organization of the United Nations and the United Nations Economic Commission for Europe which has been released in a report called: "European Timber Trends and Prospects."

Since the Scandinavian countries are the major woodpulp exporters of the world, it is obvious that a study of pulp trends must make prime consideration of (1) the ability of these countries to maintain or increase present production levels; and (2) the rate of absorption of this production by the importing European countries.

#### Europe Exports Pulp

The European timber study shows that while Europe is normally a net importer of lumber products, it has been and re-

mains a net exporter of pulp and pulp products. Before World War II these exports amounted to over 2 million tons, expressed in pulp equivalent, and the export recovery since the war has reached approximately the same level, although at the expense of European consumers since production is actually still four percent below pre-war standards. The report says: "The fact that most of the reduction in Europe's pulp and paper output was borne by European consumers demonstrates the importance of this trade to Europe as an earner of foreign exchange, and of hard currencies in particular. Its importance is not confined to the northern countries, for although these three countries exported well over 90 percent of the pulp, their proportion of the higher value paper exports was only 65 percent. Part, at least, of the consumer restrictions in Western Europe can be attributed to the need of the United Kingdom, France and the Netherlands to earn foreign exchange by supplying their pre-war export markets for paper."

The report continues: "Two other points are worthy of note. Whereas in 1935-38, in terms of pulp equivalent, two-thirds of Europe's net exports of pulp and pulp products combined consisted of pulp, the corresponding proportion in 1950 was two-fifths. Europe was able to improve the composition of its net trade, and so earn more revenue per unit of raw material, in the sellers' market which prevailed. The other point concerns Europe's pulpwood balance. Up to 1938, large quantities of pulpwood were received from the

U.S.S.R. and from Eastern Europe; in 1937, Europe had a net import of 3 million cubic meters of pulpwood. In 1950, imports from these regions were negligible."

#### Requirements for 1960

It is estimated that European demand for pulp will be such that by 1960 the requirements for pulpwood will be from 45 to 72 percent higher than present production—depending upon the increase in European gross product. The estimates are made on the assumption of an increase in this gross product of from 20 to 50 percent. If the gross product rises 50 percent, the 1960 European requirements for woodpulp are estimated at 17 million short tons, and if 20 percent, the woodpulp needed would be almost 15 million short tons. This would compare with less than nine million tons produced in 1952—showing an increase in woodpulp needed to meet expected additional requirements of from six to eight million tons.

Is there enough industrial wood in Europe to meet these requirements? The United Nations European Commission says, yes, but only under certain stringent conditions which are outlined as constituting "the dynamic forest policy." This policy calls for:

1. Rendering accessible some minor virgin forests.
2. Extrusion of thinnings and other silvicultural improvements.
3. Upward revision of cutting programs where new forest inventories indicate.
4. Reduction of forest losses by fire and disease.
5. Diversion of more fuelwood to industrial use.
6. Utilization of sawmill and other industrial wood waste.
7. Extensive reforestation for the future.

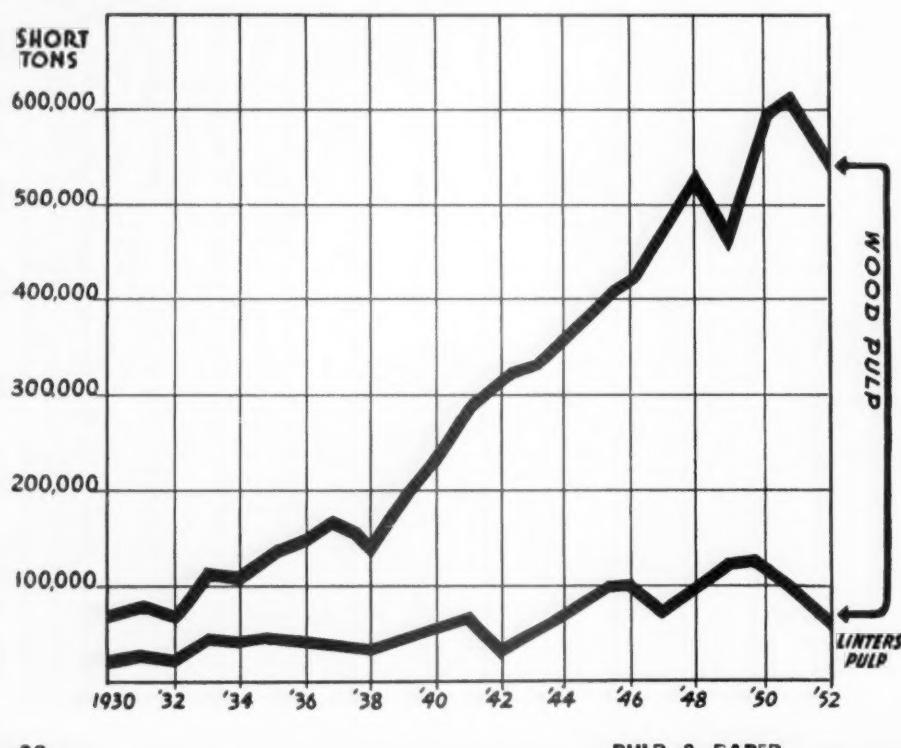
The U.N. study shows that under present cutting programs in Europe the 1950 pulpwood cut of 36 million cubic meters could be raised to only 39.9 million by 1960, whereas the "dynamic" policy would yield a volume of between 54 million and 63.3 million cubic meters according to the growth of the gross product of the area. This policy, plus a resumption of trade with the U.S.S.R., would help carry Europe through the demands of the next decade or two—until the time forest production might be likely to increase again.

The report says: "Irrespective of specific estimates and conclusions and the faith attached to them, the present study reveals a startling stability in Europe's forest output which cannot continue much longer. In an expanding economy, it is abnormal that the production and consumption of a basic material like timber should remain unchanged for decades. If timber consumption does not rise in line with, although not necessarily at the same rate as, gross European product, then it is likely to fall. And the fall may not be merely a relative one, as measured in terms of consumption per unit of output or per head of population; it may in due course, through the loss of markets to other materials, become an absolute decline."

If the required wood is there through

#### WOOD CELLULOSE VS. COTTON LINTERS—RAYON AND ACETATE

DRAWN BY PULP & PAPER'S ARTIST, this chart shows how Woodpulp has become the dominant raw material for rayon and acetate. (The U. S. Trade Commission has ruled that viscose is rayon and acetate is not rayon, but acetate, and they should be differentiated). Despite the fact that uses of Woodpulp in rayon and acetate fell off slightly last year to 484,700 tons from the all-time high of 515,500 tons in 1951, the decline in Cotton Linters pulp consumption was even greater, from 100,800 to 64,800 tons. This was lowest for Cotton Linters since 1943. The Percentage of Woodpulp used was 88 percent, up 4 percent from the year previous, and tying the alltime record percentagewise (88 percent Woodpulp use in 1942). Since 1937, over three-fourths of the cellulose used in rayon and acetate has derived from Wood.



## CHLORINE DIOXIDE PLANT IN GERMANY

FROM WEST GERMANY, this exclusive photograph was sent to PULP & PAPER showing how ZELLSTOFF-FABRIK WALDHOF, a leading German company, has saved space with a modern plant for preparation of chlorine dioxide to bleach strong pulp liquors. The trend to chlorine dioxide in North America's pulp industry for higher brightness and pulp quality is one of the most important trends in that industry. Harmac pulps, made by MacMillan & Bloedel Ltd. at Nanaimo, B. C., and Riegel Carolina pulps from Riegelwood, N. C., were first chlorine dioxide bleached pulps on this continent. Soon Potlatch Forests Inc., Lewiston, Idaho, will be third; and the new East Texas Pulp & Paper Co. and other new mills are expected to utilize the process.

the pursuit of the dynamic policy, will there be enough woodpulp capacity in 1960 in Europe to meet its own demands and still maintain the net export balance of woodpulp of around one million tons per year? The U.N. group feels there will be sufficient capacity available. Northern Europe is expected to have a total capacity of 9 million tons by 1960; Eastern and Central Europe is planning 770,000 additional tons for a capacity of 2.23 million tons; Germany plans expansion of 275,000 tons to come up to 2.2 million tons capacity; and the other importing countries are raising their capacities so that by 1960 the total European woodpulp capacity should be 17.38 million tons annually.

The projected 1960 European picture would then be as follows:

### 1960 European Woodpulp Capacity and Requirements (in short tons)

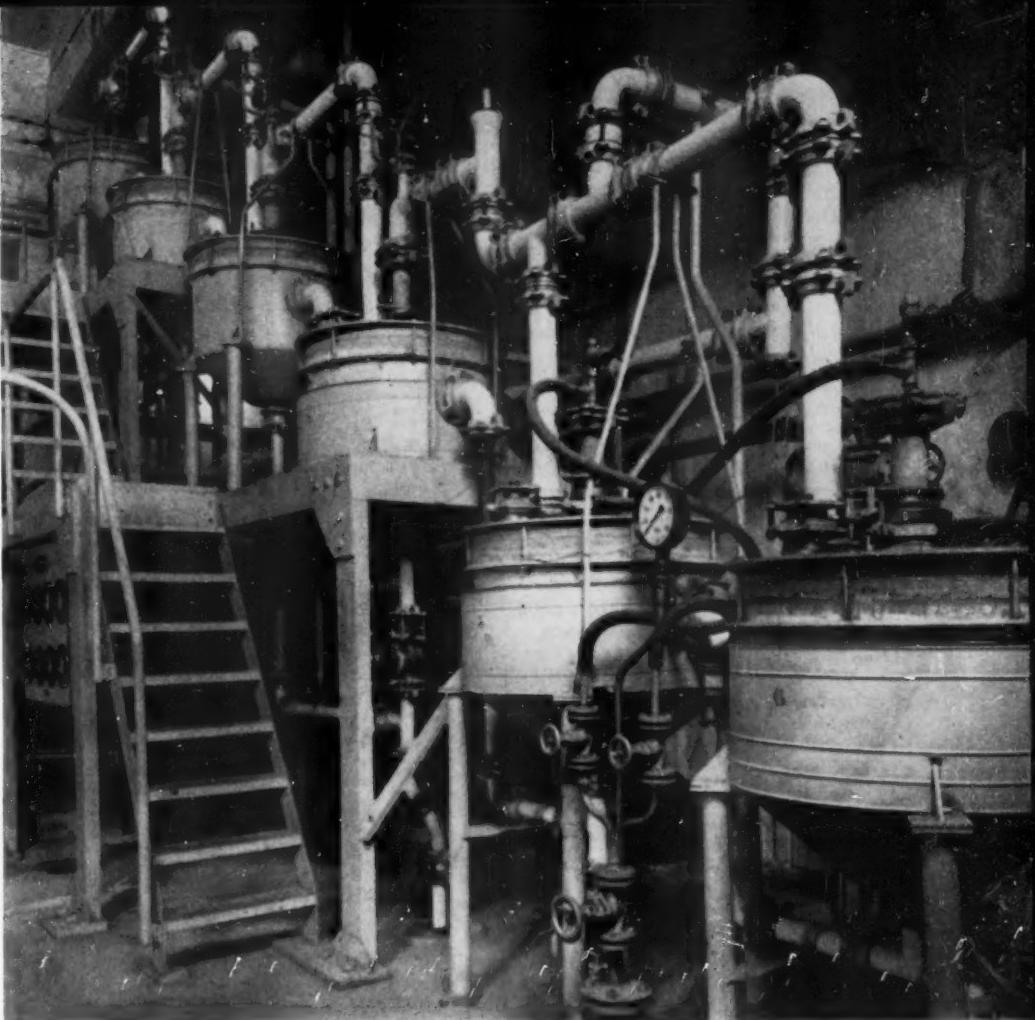
If European gross product is higher than 1950 by:	Capacity	Requirements
50%	17,380,000	17,000,000
20%	15,950,000	15,000,000

This production would take care of expected domestic requirements and would permit a continued pattern of net exports of about one million tons of woodpulp per year.

In this discussion, European production and requirements have been taken as an entity since most of the pulp exports of the Scandinavian countries have gone to the other European countries, and the net exports of Europe in woodpulp and its products of something over two million tons per year at 1950 standards includes approximately one million tons of chemical woodpulp which goes overseas from Scandinavia.

### Need to Change Forest Practices

The ability of Europe to sustain itself in pulpwood and woodpulp is all-important in determining the course of world pulp trade in the years to follow. The U.N. study shows that Europe cannot meet its own requirements by 1960 on the basis of present practices and pulpwood production, and that only a "dynamic forest policy" can keep it self-sustaining. If this policy were not put into effect, and if Europe were to keep up its present level of net exports in woodpulp and its products, it would do so at the expense of its own consumers.



These are some of the "big ifs" that must be considered by members of the woodpulp industry in the producing areas of Scandinavia and North America, and what happens will determine the extent to which they become competitive in supplying the pulp requirements of the rest of the world.

World needs for woodpulp may be expected to grow just on the simple basis of the continued growth of population. But if some areas now consuming small amounts should begin to raise their per capita demand appreciably, then woodpulp would again be in short supply. Per capita figures are estimated as follows:

Area	Consumption of woodpulp and products	
	1949	Population (lbs. per capita)
Europe (excluding USSR)	346,000,000	44
North America	163,000,000	242
Latin America	135,000,000	13.2
Africa	181,000,000	4.4
Asia (excluding China)	762,000,000	4.4
Pacific area	12,000,000	101.2

Doubling of the per capita consumption of pulp in the low consuming areas of Latin America, Africa and Asia during the next 10 years would require about three and one-half million tons of woodpulp production additional per year. This

would be true in spite of fulfillment of some local demands through plants making pulp from bagasse, straw, hardwood, bamboo, etc.

### Non-Paper Markets

The expanded use of woodpulp in textile fibers is expected to continue during the coming years and it is noted in a recent release by *Textile Organon* that the world production capacity for rayon-acetate fibers will be 5,624,000,000 lbs. in 1954 as compared with the actual production in 1952 of 3,585,000,000 lbs.—an increase of almost 2 billion lbs. However, at the same time it is shown that world capacity for the non-cellulosic fibres will reach 783,800,000 lbs. in 1954—an increase of 450,000,000 lbs. over 1952 production.

The possible significance here is revealed when it is further observed that production of the non-cellulosic fibers increased 24 percent during 1952 in a year which saw a production decline in rayon of 9 percent and in acetate of 20 percent. This might indicate a coming "war of fibers" with the cellulosics meeting stern competition from the non-cellulosics. But this competition in high-standard-of-living countries would be of no consequence if demand rises in the low-standard-of-living countries by as little as 1 or 2 percent for the total man-made fibers.

On the matter of rayon-acetate production, which will require 3,500,000 tons of cellulose if 1954 plants are run to capacity, C. B. Morgan, president of Rayonier Inc., says that only North American woodpulp producers can handle the in-

creased world requirements, particularly from Japan and Europe, because only this area has the available wood resources.

Nitration pulps are only a small part of the world total, and are in critical demand only during time of war. And in time of war the whole peacetime trend of woodpulp production and flow is disturbed, so they have little place in a discussion of market potentials.

#### Paper-Use Markets

New paper-use developments can be expected to consume ever greater quantities of woodpulp throughout the world. As PULP & PAPER pointed out in its Sept. 1952 issue, one such development, the paper milk container, has resulted in a market for 300,000 tons of bleached chemical pulp in the U.S. annually, with a potential market here of over 500,000 tons.

In other lines there have been developments even more significant. A whole new industry, for example, that of fresh foods prepackaging, has been established in the U.S., built on the idea of supplying consumers with fresh fruits and vegetables packaged in individual paperboard containers or transparent film packages. One single item, tomatoes, accounted for the use of over one billion unit packages during 1952 plus the necessary corrugated shipping and display cases to handle.

A recent development in Western U.S. has been a kraft shipping container for fresh lettuce. This development was made possible through installation in the large vegetable shipping centers of vacuum cooling tunnels which reduce product temperature without ice, and permit shipment without top icing of the packages in the freight cars. Tonnages involved for packaging of this one product are staggering. Similar packaging is being developed

**JAPAN IS BUYING PULP AGAIN** and when SS Kyoshin Maru called at Powell River, B.C., in Spring of 1953, to load the first unbleached sulfite pulp to be shipped from British Columbia across the Pacific since the war, RUSSELL COOPER, vice-president and resident manager, posed on the ship's deck with CAPTAIN M. YAMAMOTO.



#### WORLD WOODPULP ESTIMATES (Since 1925)

(Estimated by U.S. Pulp Producers Assn.  
and PULP & PAPER)

Year	Exports	Consumption
	(In Short Tons)	
1925 .....	3,899,000	13,962,000
1937 .....	7,126,000	26,823,000
1951 .....	6,987,000	41,098,000
1953 .....	7,000,000	40,000,000

for the citrus which, if successful, would bring additional heavy woodpulp requirements.

Beyond these developments are those which combine paper with plastics resins to open up new fields of paper uses. Recently, one of the U.S. wet strength resin suppliers enlisted the cooperation of some 22 paper manufacturers to put on a display of new wet strength paper products. In this display were such things as disposable paper swimming and sun suits and automobile seat covers and upholstery of woven, melamine-treated paper fibers. Successful applications, such as these, open up tremendous new market for paper.

#### New Woodpulps

Of particular importance has been the development of the semi-chemical pulping process which has permitted the manufacture of high yield pulp from native hardwoods. This has been significant in Northeast areas where beech, birch and maple are predominant species since depletion of the softwood supply; in the Midwest where there are ample supplies of fast-growing poplar (aspen); and in the Southeast where the process permits pulping of gums and other hardwoods and a more complete utilization of the forest product.

There were 26 semi-chemical mills in operation in the U.S. during 1952 with a capacity of 1,061,783 tons and a production for the year of 821,177 tons. Most semi-chemical production is in integrated operations where it is used for manufacture of corrugating medium. But it is also being blended with other pulps and in some cases is being bleached to full brightness for use in fine quality book papers and glassine.

Semi-chemical pulps at present are not an important factor in the market pulp picture, although some has been shipped from Finland. It may appear in the U.S. mills market when shipped as wet lap from producing mills.

Chlorine dioxide bleaching has been one of the outstanding new developments in the North American woodpulp industry, and at the present time good quality bleached hardwoods and softwoods are being offered on the market in quantity. This has made possible a market kraft pulp competitive with quality sulfite. A process has been developed with equipment designed to obtain 90 G.E. brightness in a single stage chlorine dioxide bleaching system, which accomplishes in four stages the bleaching normally required in from five to eight stages. Cost

of the chlorine dioxide stage is less than \$200,000, according to manufacturers.

#### Woodpulp Prices

Most significant trend of 1952 and of the past few months in respect to prices has been the orderly absorption by the market of increased production and the stabilizing of prices at close to U.S. domestic pulp price levels. This was a natural consequence of the fact that the U.S. is the largest consumer of Canadian and Scandinavian pulps, and that its own increased woodpulp capacity and a slight economic recession set up a situation that made the price adjustment necessary. One observer has pointed out that the situation since July 1, 1952 is the closest to a normal woodpulp market that has been seen since the war, with both Canadian and Scandinavian prices adjusted to realistic levels with the domestic prices of their biggest customer.

It is felt that the market as it now stands must not be allowed to go lower, as a drop in price would make it unprofitable for some producers to continue to operate mills. And a break in prices could precede a general scramble which would unsettle the industry throughout the world.

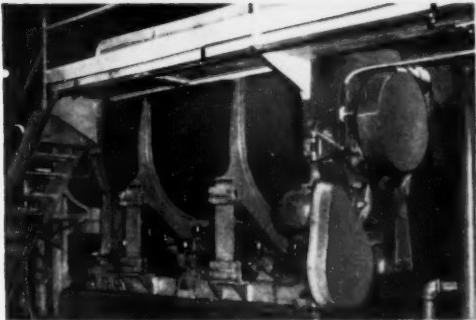
#### Woodpulp Notes Around the World

**North American Market Pulp:** Unbleached sulfite and sulfate are the only woodpulp grades in which this continent will not be self-sufficient when the Weyerhaeuser mill at Everett, Wash., and the expanded Harmac mill at Vancouver, B.C., begin production, and conversion of the Gaspesia Anglo-Canadian mill from unbleached to bleached is completed. Strong tendency in U.S. industry has been to switch from unbleached sulfite in board and tissue manufacture to a combination of bleached kraft—and either semi-chemical or groundwood.

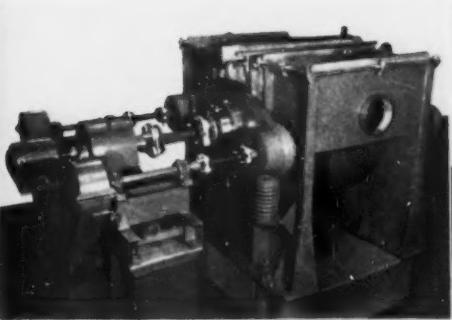
**1953 Pulp Predictions:** U.S. pulp imports from Scandinavia during 1953 will run between 300,000 to 350,000 tons, according to current estimates. Predictions for 1953 include 17 million tons U.S. woodpulp production; 2 million tons total imports; 200,000 tons total export.

**Europe Busy and Easy:** Roy Johnsen, of Johnsen, Jorgensen & Wetre, Ltd., British woodpulp firm, says trade is busy in Europe and stocks of finished products have been reduced to manageable proportions, although consumers of paper are still waiting to stock up again should paper prices follow reduced prices in woodpulp. Present Scandinavian woodpulp prices, he says, are pressing hard on cost of production and further falls in price are unlikely. "As long as there is no major recession in trade in the U.S. later this year the pulp and paper trade in Europe can look forward to steady but competitive business."

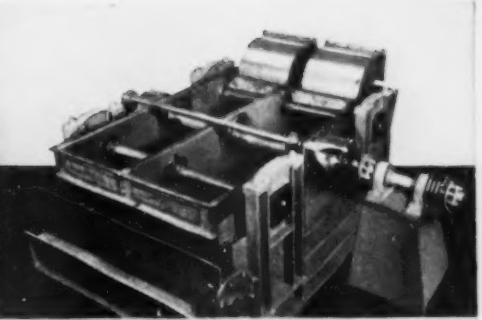
**Far East Market Prospects:** Far Eastern peace would restore an important pulp market practically non-existent for more than 12 years, according to Harold S. Foley, president of Powell River Co.,



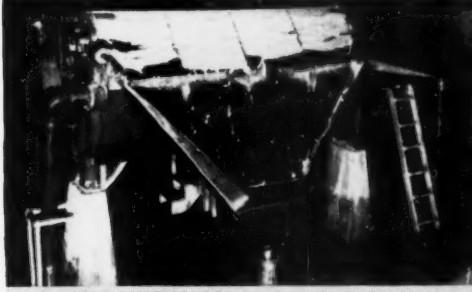
**BIRD SCREENS** for continuous production of uniformly good paper at maximum paper machine speed. More than 90 per cent of all the paper stock screened in North America passes through Bird Screens.



**BIRD VIBROTOR SCREENS** for handling big volumes of stock at high consistencies and low cost per ton. Ideal for hard kraft, double dilution systems, semi-chemical deinked stocks, and difficult paper stocks.



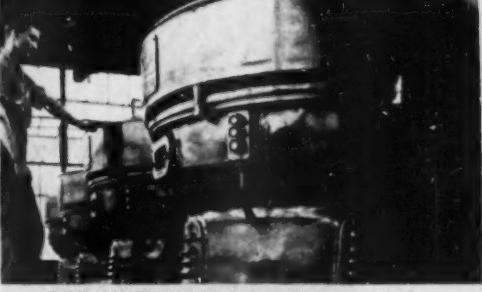
**BIRD JONSSON SCREENS** for high capacity, high efficiency knotting and screening of sulphite, sulphate and groundwood; the standard ahead of brown stock washers; superb for straw and waste paper stocks.



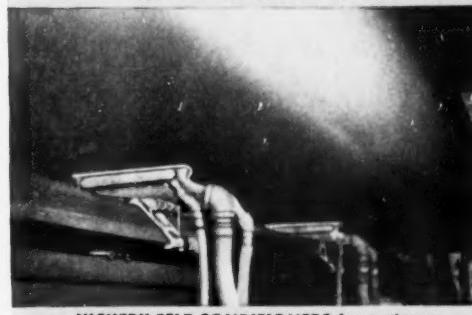
**BIRD SAVE-ALLS** for recovery of valuable fibre from waste water at lowest net cost per ton. They save stock, water, time, trouble and money — quickly pay for themselves.



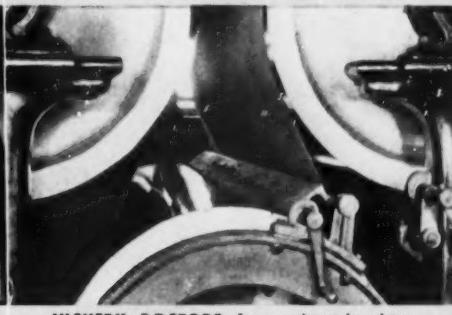
**DIRTECS** for super-effective separation of dirt from all varieties and volumes of paper stock. Easy and economical to install, operate and maintain.



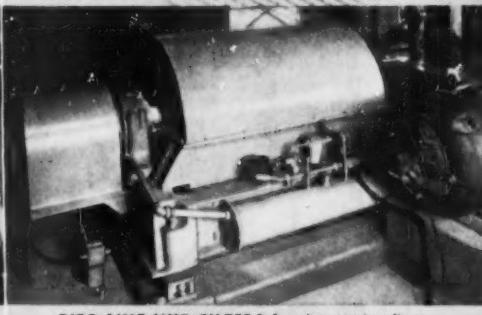
**BIRD CENTRIFINERS** for complete removal of fine dirt particles from fine writings, photographic papers, condenser tissues, glassines, cigarette papers, laminated plastic bases, etc.



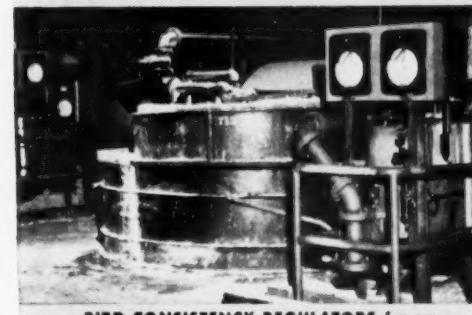
**VICKERY FELT CONDITIONERS** for continuous top speed press felt operation without mid-week shutdowns. Assure maximum water removal at the presses.



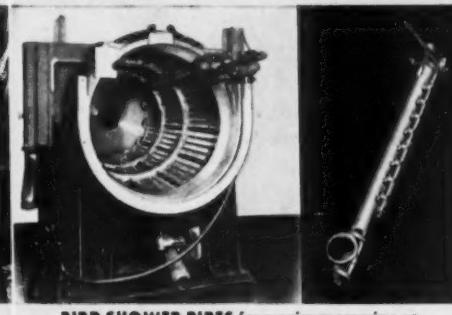
**VICKERY DOCTORS** for continuously clean, shining rolls. Specifically engineered for press rolls, breast rolls, wire rolls, dryers, calender and super-calender rolls.



**BIRD LIME MUD FILTERS** for dewatering lime mud in the lime-soda process. Save fuel by delivering a drier and more uniform feed to the kilns. Lowest cost of operation and maintenance.



**BIRD CONSISTENCY REGULATORS** for precise, dependable, automatic control of stock consistency. Available with mechanical or with pneumatic recording controller.



**BIRD SHOWER PIPES** for maximum scouring action and minimum use of water. Both Oscillating and Self-Cleaning types.



**BIRD CORLOCs** for unwind, surface rewind or rewinding — lightweight, safety locking arbors that reduce accidents and save cores.

## For PULP & PAPER's Annual Review Number— THIS QUICK REVIEW OF BIRD MACHINERY

for the making of better pulp and paper  
and more of it per day at lower cost per ton

**BIRD MACHINE COMPANY • South Walpole, Mass.**



At least 170 thousand forest fires start each year, burning more than 15,000,000 acres of timber land. Yet much of this shameful waste could be avoided, as nine out of ten forest fires are man-caused and preventable. Prevention of future fires down through the years is primarily a matter of organization and education.

The men and management of Weyerhaeuser Timber Company are keenly aware of the necessity of protecting forest lands from fire.

In the fall of 1941, Weyerhaeuser established the first officially designated "Tree Farm" at

Montesano, Washington. Dedicated to the perpetual production of trees, Tree Farm rules require that adequate protective measures be instituted against fire, insects, and disease.

Today, all Weyerhaeuser Timber Company operating forest lands are tree farms, managed by skilled foresters. This tree farming system, wholeheartedly sponsored by Weyerhaeuser, guarantees the Pulp Division's customers an assured supply of woodpulp for the many years stretching ahead in the "cellulose age" in which we live.



Vancouver, B.C. Stabilization of conditions in Japan has already brought resumption of Canada's exports of pulp to that country and in April 600 tons of unbleached sulfite were loaded for a Japanese port. Mr. Foley recalled that Powell River in 1935 shipped more than 65,000 tons of newsprint to the Orient—equivalent to 20 percent of its 1952 total production—and that today not one ton of North American newsprint is entering this market. Last year 80 percent of Powell River's newsprint sales were to the U.S., the rest to Canadian and Australian customers.

**Austrian Exports:** Austria exported pulp and paper products in 1952 having a value of about 50 million dollars—more than 11 percent of the country's total export earning. Principal markets were Italy, Germany, Argentina, India, Switzerland, Trieste, Egypt, Pakistan, England, Turkey, Australia and Yugoslavia.

**Yugoslavia Exporter:** A Yugoslav mill in Prijedor is the only one in the country producing sulfite for export—shipping 7,000 tons of unbleached in 1952. This mill began production in 1951 and expects to have a bleach plant producing this year.

**France Improves Position:** To ease its pulp position, France has been studying plans for mills to utilize Algerian, Tunisian and Moroccan alfa-grass. Besides the "Cellunaf" mill, which began production in early 1951, one mill is being planned for Tunisia and another in the lower Rhone valley—this latter mill also to use Scotch pine for making kraft pulp. A dis-

#### U.S. PULP FORECAST

By U.S. Pulp Producers Assn. — in short tons

Production in 1953	17,000,000
Imports for 1953	2,000,000
Exports for 1953	200,000
Total New Pulp Supply*	18,800,000

(\*Exceeds 1951 by 275,000 tons and 1952 by 775,000—1952 new supply was 18,026,000)

solving pulp mill to use beech is being built near Rouen and other mills increased capacities. If the French woodpulp industry does modernize to meet principal part of its requirements, indications are that tariff protection will be provided.

**Switzerland Produces:** Of the 14 mills in Switzerland making woodpulp two are producing market pulp. These two are Cellulosefabrik Attisholz, producing sulfite grades; and Fabrique de Pates de Bois, St. Sulpice, producing groundwood.

**Columbia Cellulose Exports:** Columbia Cellulose Co., Prince Rupert, B.C., (an affiliate of Celanese Corp. of America) recently shipped 500 tons of high alpha pulp to France for the manufacture of acetate rayon. This is the first export shipment from this mill, which began operations in early 1952. The mill is being expanded from 200 to 300 tons per day.

**Two Portugal Mills:** A complete pulp and paper mill is to be constructed in Portugal for Celluloses do Guardiana, S.A. of Lisbon, utilizing wheat straw, waste paper and some imported pulp as raw materials. The mill will be built by Parsons & Whittemore, Inc. through its

London affiliate, Lyddon & Co. Ltd.

Already in operation in Portugal is Caima Pulp Co., Quinta do Caima, Albergaria-a-Nova, which makes bleached sulfite eucalyptus pulp, sold all over the world for blotting and specialties and printing pulps. Production is being doubled to 15,000 tons by 1954.

#### Pulp Operations Report

While operations of the U. S. were maintained at 94 per cent of capacity during the first half of the present year, compared with full capacity operations in that period of last year, Lawson P. Turcotte, president of Puget Sound Pulp, reported domestic production of all grades of pulp combined totaled 8,364,000 tons during the six months ended with June 1952, in comparison with 8,287,000 tons in the like period of 1951.

#### New Head of Mexican Chihuahua Project

Rafael F. Vallina has been named director general of Celulosa de Chihuahua, S. A., A.P. No. 530, Chihuahua, Chih., Mexico, the company which has a government loan of 50% of a \$15,000,000 capitalization for a cellulose pulp mill at Temosachic, in Chihuahua. Snia Viscosa of Milan, Italy, and New York, which pledged 25%, were previously reported engineers for the project. Enrique Ames, at the same postal box number in Chihuahua is purchasing agent.

WOOD PULP · PAPER  
HARDBOARD · PLYWOOD  
ACOUSTICAL TILE

ELOF HANSSON, INC.

220 EAST 42nd STREET  
NEW YORK 17, N.Y.

# WORLD MARKET WOODPULP

## DIRECTORY OF PRODUCERS, IMPORTERS AND AGENTS

### WORLD PRODUCERS OF MARKET WOODPULP

Listings following company names and addresses give type of pulp and brand names. All grades are softwood unless otherwise specified.

#### UNITED STATES

##### American Wood Board Co.

Schuylerville, New York  
Groundwood  
Standard, unbleached

##### Brown Company

General Sales Office:  
150 Causeway St., Boston 14, Mass.  
Branch Offices:  
500 Fifth Ave., New York 36, N.Y.  
465 Congress St., Portland 4, Me.  
110 S. Dearborn St., Chicago 3, Ill.  
58 Sutter St., San Francisco, Calif.  
3732 S. Broadway, St. Louis, Mo.  
(See Brown Corp. in Canadian section)  
Mill at: Berlin, N.H.  
Sulfite, bleached  
Softwood and hardwood  
Dissolving and related grades  
Special grades  
Screenings  
Sulfite—Sulfate  
Brands:  
Solka Alpha V; Solka Photographic;  
Solka Soft Alpha; Solka Dur Sylvan;  
Solka Dur Natus; Solka Special Dur  
Alba

##### Brunswick Pulp & Paper Co.

Mill at: Brunswick, Georgia  
Agent: The Mead Sales Co., Inc.  
Sulfate, bleached  
Grade—Pine hardwood  
Brand: Brunswick

##### Champion Paper & Fibre Co.

Executive Office:  
Hamilton, Ohio  
Mills at:  
Canton, North Carolina  
Pasadena, Texas  
Agents: Castle & Overton, Inc.  
Gottesman & Co., Inc.  
Sulfate, bleached  
Standard grades  
Standard grades—hardwood

##### Chesapeake Corp. of Virginia

West Point, Virginia  
Agent: Parsons & Whittemore, Inc.  
Cellulose Sales Co., Inc.  
(Prime Quality Kraft)  
Sulfate, unbleached  
Standard grades  
Brand: Chesapeake

##### Container Corp. of America

Main Office:  
38 S. Dearborn St., Chicago 3, Ill.  
Mill at: Fernandina, Florida  
Agent: Gottesman & Co., Inc.  
Sulfate, unbleached  
Special grades  
Brand: Conus

##### Crown Zellerbach Corp.

Executive office:  
San Francisco, Calif.  
Mills at: Camas, Washington  
Agent: Gottesman & Co., Inc.  
Sulfite, bleached  
Standard grades

##### Dexter Sulphite Pulp & Paper Co.

Dexter, New York  
Agent: Bulkley, Dunton Pulp Co., Inc.  
Sulfite, bleached  
Special grades  
Sulfite, unbleached  
Special grades  
Screenings  
Sulfite—Mitscherlich

##### Eastern Corporation

Executive office:  
Bangor, Maine  
Mills at:  
Lincoln, Maine  
South Brewer, Maine  
Agent: Gottesman & Co., Inc.  
Sulfite, bleached  
Special grades  
Standard grades  
Standard grades—hardwood  
Brands: Purocell

##### Gaylord Container Corp.

Executive office:  
111 North Fourth St., St. Louis 2, Mo.  
Mill at:  
Bogalusa, La.  
Agent: Gottesman & Co., Inc.  
Sulfate, bleached  
Standard grades  
Sulfate, unbleached  
Standard grades  
Special grades  
Brands: Bogalusa; Black Kraft

##### Gilman Paper Co.

Main office:  
630 Fifth Ave., New York 20, New York  
Mills at:  
Gilman, Vermont  
St. Mary's, Georgia  
Sulfate, unbleached  
Standard grades  
Standard unbleached

##### Halifax Paper Co., Inc.

Main office: The Albemarle Paper Mfg.  
Co., Richmond, Va.  
Mill at: Roanoke Rapids, N. C.  
Sulfate, bleached  
Partially bleached  
Sulfate, unbleached  
Standard grades  
Standard grades—hardwood  
Brand: Halifax

##### Hollingsworth & Whitney Co.

Main office:  
60 Batterymarch St., Boston 2, Mass.  
Mills at:  
Madison, Maine (Groundwood)  
Mobile, Alabama (Sulfate)  
Agent: Castle & Overton, Inc.  
(for bleached sulfate only)  
Groundwood  
Special grades—bleached  
Special grades—unbleached  
Sulfate  
Semi-bleached  
Bleached

##### International Paper Co.

Executive Office:  
New York, New York  
Mills at:  
Bastrop, La.  
Camden, Ark.  
Georgetown, S. C.  
Mobile, Ala.  
Moss Point, Miss.  
Natchez, Miss.  
Panama City, Fla.  
Spring Hill, La.  
Agent: Gottesman & Co., Inc.  
Riordon Sales Corp. (Dissolving grades only)  
Sulfate, bleached  
Special grades  
Standard grades  
Standard grades—hardwood  
Sulfate, unbleached  
Special grades  
Standard grades  
Brands: Natchez Supercell;  
Spring Hill

##### Little Rapids Division

Hoberg Paper Mills  
De Pere, Wisconsin  
Groundwood  
Standard grades  
Bleached and unbleached

##### Marathon Corp.

Rothschild, Wisconsin  
Sulfite, bleached  
Standard grades  
Sulfite, unbleached  
Standard grades  
Screenings  
Sulfite

##### The Mead Corp.

Mills at:  
Bristol, Virginia  
Kingsport, Tennessee  
Agent: The Mead Sales Co., Inc.  
Soda  
Bleached  
Unbleached  
Brand: Mead

##### National Container Corp.

Executive office: New York, N. Y.  
Mills at:  
Jacksonville, Florida  
Ontonagon, Michigan  
Agent: Gottesman & Co., Inc.  
Sulfate, unbleached  
Standard grades

##### North Carolina Pulp Co.

Mill at: Plymouth, N. C.  
Branch office:  
Box 710, Camden 1, N. J.  
Sulfate, bleached  
Standard grades  
Partially bleached  
Sulfate, unbleached  
Standard grades

##### Oswego Falls Corp.

Fulton, New York  
Groundwood  
Standard unbleached

# Planning For Pulp...



ABOVE: Aerial view of recently enlarged St. Regis Paper Co. mill at Tacoma, Wash.  
Tacoma Sulphate Pulp enjoys a worldwide reputation among paper makers for its outstanding strength characteristics. Production — 750,000 lbs. daily.

LEFT: Scene in a St. Regis stand of timber in the Northwest which supplies the Tacoma mill.

As custodian of over 2,000,000 acres of forests, from Maine to Washington and from Quebec to Florida, St. Regis recognizes the necessity to perpetuate this valuable source of pulpwood.

Natural reforestation, selective cutting, the planting of seedlings and a continuing program for fire and disease prevention assure that every time a tree is used for pulp, a new tree is there to replace it. Thus St. Regis plans for trees for tomorrow and contributes to the future of the paper industry throughout the world.

## ST. REGIS SALES CORPORATION

SALES SUBSIDIARY OF ST. REGIS PAPER COMPANY

### PULP DIVISION

230 PARK AVENUE • NEW YORK 17, N.Y.

#### TACOMA

#### SUPER STANDARD

#### SULPHATE PULP

BLEACHED AND UNBLEACHED



## WORLD MARKET WOODPULP DIRECTORY

### **Oxford Paper Co.**

Executive office:  
230 Park Ave., New York 17, New York  
Mill at: Rumford, Maine  
Agents: **Gottesman & Co., Inc.**  
**The Mead Sales Co., Inc.**  
Sulfite, bleached  
Standard grades—hardwood  
Brand: Oxford

### **Penobscot Chemical Fibre Co.**

Executive office:  
211 Congress St., Boston, Mass.  
Mill at: Great Works, Maine  
Sulfite, bleached  
Standard grades  
Soda  
Bleached  
Brand: Penobscot

### **Puget Sound Pulp & Timber Co.**

Bellingham, Washington  
Agent: **Bulkley, Dunton Pulp Co.**  
Sulfite, unbleached  
Special grades  
Standard grades

### **Rayonier, Inc.**

Executive office: New York, N. Y.  
Mills at:  
Fernandina, Florida  
Hoquiam, Washington  
Port Angeles, Washington  
Shelton, Washington  
Jesup, Georgia (under construction)  
Agent: **Gottesman & Co., Inc.**  
Sulfite, bleached  
Special grades  
Standard grades

### **Riegel Carolina Corp.**

Executive office: New York, N. Y.  
Mill at:  
Acme, North Carolina  
Agent: **Bulkley, Dunton Pulp Co.**  
**Gottesman & Co., Inc.**  
Sulfite, bleached  
Special grades  
Standard grades—hardwood  
Sulfite, unbleached  
Standard grades  
Brands: Super-Albacel; Albacel;  
Aurocel

### **St. Marys Kraft Corp.**

St. Marys, Georgia  
Agent: **Bulkley, Dunton Pulp Co.**  
Unbleached Kraft  
Regular and Soft

### **St. Helens Pulp & Paper Co.**

St. Helens, Oregon  
Agent: **Bulkley, Dunton Pulp Co.**  
Sulfate, unbleached  
Special grades

### **St. Regis Paper Co.**

Executive office:  
230 Park Ave., New York 17, N. Y.  
Mill at: Tacoma, Washington  
Agents: **Gottesman & Co., Inc.**  
**St. Regis Sales Corp.**  
Sulfite, bleached  
Standard grades  
Sulfate, unbleached  
Standard grades  
Brands: Tacoma

### **Scott Paper Co.**

West Coast Division  
Everett, Washington  
Manager of Pulp Sales  
R. M. Heath  
Scott Paper Co.  
Chester, Pa.  
Sulfite, bleached  
(Dissolving and related grades)  
Standard grades  
Screenings  
Brand: Soundview

### **Southland Paper Mills, Inc.**

Lufkin, Texas  
Agent: **Perkins-Goodwin Co.**  
Sulfite, unbleached  
Standard grades

### **Spaulding Pulp and Paper Co.**

Newberg, Oregon  
Agent: **Perkins-Goodwin Co.**  
Sulfite, unbleached  
Standard grades

### **Tomahawk Pulp Co.**

Tomahawk, Wisconsin  
Branch office:  
115 S. Superior St., Appleton, Wis.  
Groundwood  
Fine tissue grades  
Toweling, and free board  
Grades to specifications

### **West Virginia Pulp & Paper Co.**

Executive office:  
230 Park Ave., New York 17, New York  
Mill at: Mechanicville, New York  
Agent: **Castle & Overton, Inc.**  
Sulfite  
Sulfate  
Screenings

### **Weyerhaeuser Timber Co., Pulp Division**

Sales office:  
230 Park Avenue, New York 17, N. Y.  
Branches:  
Bank Bldg., Clinton, Mass.  
400 West Madison Street, Chicago 6, Ill.  
Mills at: Everett, Washington  
Longview, Washington  
Sulfite, bleached  
Dissolving and related grades  
Papermaking grades  
Sulfate, bleached  
Papermaking grades

## CANADA

### **Abitibi Power & Paper Co., Ltd.**

408 University Ave., Toronto 2, Ont.  
Mill at: Merriton, Ont.  
Smooth Rock Falls, Ont.  
Port Arthur, Ont.  
Agent: **The Mead Sales Co., Inc.**  
Sulfite, bleached  
Sulfite, unbleached  
Screenings  
Sulfite  
Side Run News  
Brand: Abitibi

### **Alaska Pine & Cellulose, Ltd.**

401 Marine Bldg., Vancouver 1, B. C.  
Mills at: Port Alice, B. C.  
Woodfibre, B. C.  
Agent: **The Mead Sales Co., Inc.**  
Bleached sulfate  
Paper and dissolving grades  
Brand: Alaska Pine & Cellulose

### **Alliance Paper Mills, Ltd.**

407 McGill St., Montreal 1, Que.  
Mill at: Merriton, Ont.  
Agent: **Howard Smith Paper Mills, Ltd.**  
(Pulp Sales Dept.)  
Sulfite, bleached  
Special grades  
Glassine  
Softwood  
Brand: Alliance

### **Anglo-Canadian Pulp & Paper Mills, Ltd.**

10-16 Blvd. des Capucins, Quebec  
Agents: **I. Hershman & Co., Inc.**  
**Montmorency Paper Co.**  
Sulfite, unbleached  
Prime strong  
Standard grades  
Sulfite, unbleached  
Easy bleaching  
Screenings  
Sulfite  
Pulping sideruns  
(Newsprint sideruns sold through  
I. Hershman & Co.)  
Brand: Anglocan

### **Anglo-Newfoundland Development Co., Ltd.**

Grand Falls, Newfoundland  
Also mill at: Bishop's Falls  
Agents: **I. Hershman & Co., Inc.**  
**Montmorency Paper Co., Inc.**  
Sulfite, unbleached  
Standard grades—hardwood  
News  
Groundwood  
Standard unbleached  
Newsprint sideruns  
(Montmorency Paper Co. handles Prime  
strong unbleached sulfite and pulping  
sideruns only)

### **Bathurst Power & Paper Co., Ltd.**

Sun Life Bldg., Montreal, Que.  
Mill at: Bathurst, New Brunswick  
Agents: **Acer & Co., Inc.**  
**Acer McLernon, Inc. (Montreal)**  
Sulfite, unbleached  
Standard grades  
Standard grades—hardwood  
Brand: Bathurst

### **Bowater's Newfoundland Pulp & Paper Mills, Ltd.**

Corner Brook  
Agents: **Acer & Co., Inc.**  
**Acer McLernon, Inc. (Montreal)**  
Sulfite, unbleached  
Standard grades  
News

### **Brown Corporation**

Dominion Square Bldg., Montreal, Que.  
United States offices:  
Brown Co., 500 Fifth Ave., New York  
18, N. Y.  
465 Congress Street, Portland 4, Me.  
110 S. Dearborn St., Chicago 3, Ill.  
58 Sutter St., San Francisco, Cal.  
Mill at La Tuque, Que.  
(See Brown Co. in U. S. Section)  
Sulfate, bleached  
Softwood and hardwood  
Special grades  
Super grades  
Sulfate, unbleached  
Softwood and hardwood  
Special grades  
Standard grades  
Brands: Solka No. 30, Solka No. 20,  
Solka 10A, Solka Duracel, Cellate,  
Super Strong Cellate, Durakraft, Spec-  
cial Washed Sulfate, Regular Un-  
bleached Sulfate

### **Canada Paper Co.**

407 McGill St., Montreal 1, Que.  
Mill at: Windsor Mills, Que.  
Agent: **Howard Smith Paper Mills Ltd.**  
(Pulp Sales Dept.)  
Sulfate, bleached  
Standard grades  
Sulfate, unbleached  
Special Condenser  
Brands: Tuftare; Windsor

### **Canadian International Paper Co.**

Sun Life Bldg., Montreal 2, Que.  
Mills at:  
Hawkesbury, Ont.  
Gatineau, Que.  
Temiskaming, Que.  
Trois Rivieres, Que.  
Sold by: **Riordon Sales Corp., Ltd.**  
Montreal 2, Que.  
Sulfite, bleached  
Dissolving and paper grades  
Sulfite, unbleached  
Paper grade  
Screenings  
Sulfite  
Brands: Novocell; Tenacell; Filmcell;  
Acetacell; Plasticell

### **Consolidated Paper Corp., Ltd.**

Sales office:  
Consolidated Paper Sales, Ltd.  
Sun Life Bldg., Montreal, Que.  
Mills at:  
Port Alfred, Que.  
Grand Mere, Que.  
Cap de la Madeleine, Que.

THE MEAD SALES COMPANY  
230 PARK AVENUE, NEW YORK 17, N.Y.  
20 NORTH WACKER DRIVE, CHICAGO 6, ILL.

MEAD  
pulp

DISTRIBUTORS OF WOOD PULP  
BLEACHED AND UNBLEACHED  
CHEMICAL AND MECHANICAL WOOD PULP

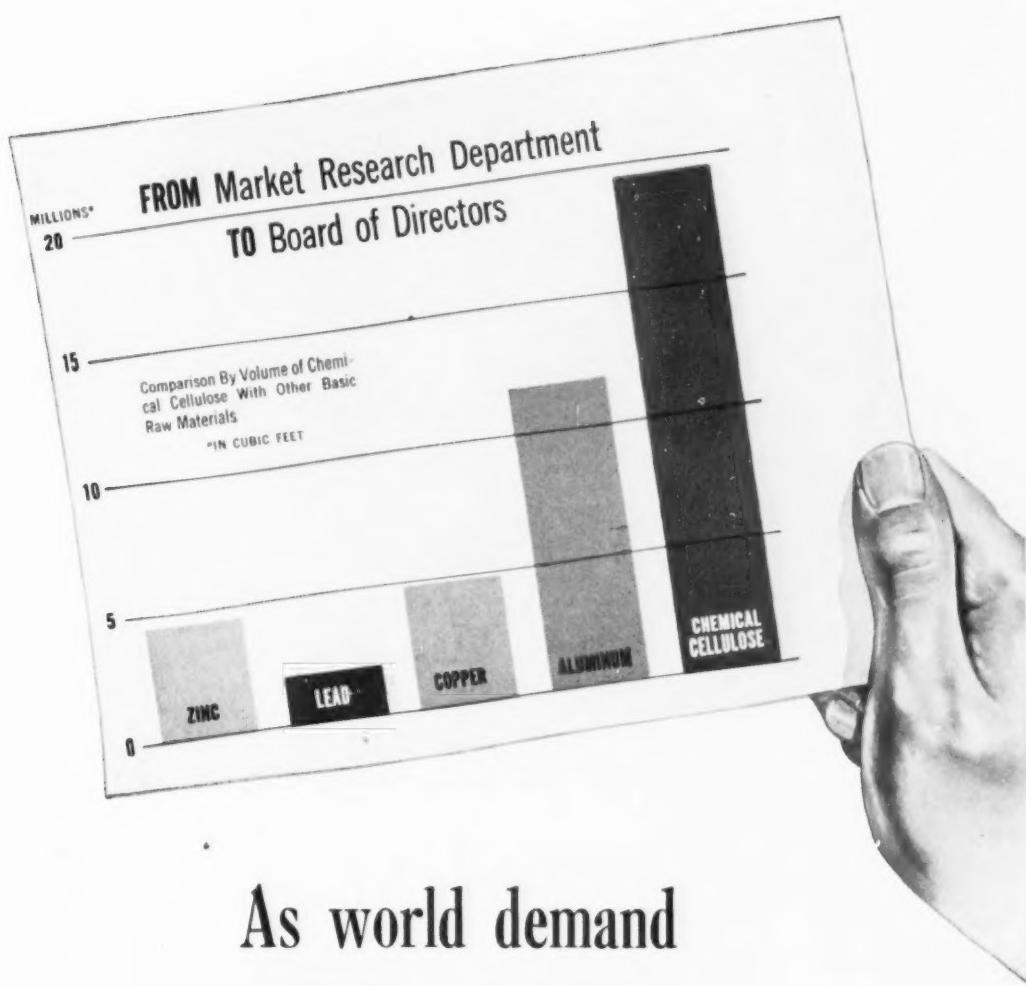


YOU DON'T HAVE TO BE PAUL BUNYAN TO STAMP IT OUT

A reproduction of this incident from the fabulous life of Paul Bunyan—the fifty-ninth of a series—will be sent on request. It will contain no advertising.

## WORLD MARKET WOODPULP DIRECTORY

<p><b>Shawinigan Falls, Que.</b> Three Rivers, Que. <b>Agent: Pulp &amp; Paper Trading Co.</b> Sulfite, unbleached Standard grades Sulfate, unbleached Special grades Standard grades Brands: Laurentide; Port Alfred; Wayagamack</p> <p><b>Donnacona Paper Co., Ltd.</b> 25 St. Louis St., Quebec, Que. Mill at: Donnacona, Que. <b>Agent: Donnacona Sales Corp.</b> <b>Gottesman &amp; Co., Inc.</b> Sulfite, unbleached Mechanical dry News Groundwood—dry Standard unbleached (handled by Gottesman &amp; Co.)</p> <p><b>Donohue Brothers Ltd.</b> Main Office: Clermont, Que. Mill at: Nairn Falls, Que. Groundwood Standard unbleached Brand: Murray Bay All sold under long term contracts</p> <p><b>Dryden Paper Co., Ltd.</b> Dryden, Ontario <b>Agents: Acer &amp; Co., Inc.</b> <b>Acer McLernon, Inc. (Montreal)</b> Sulfate, unbleached Standard grades Brand: Dryden</p> <p><b>Fraser Companies, Ltd.</b> Sales office: 1010 St. Catherine St. W. Montreal 2, P. Q. Mills at: Edmundston, N. B. Newcastle, N. B. General offices: Edmundston, N. B. Sulfite, bleached Standard grades Sulfite, unbleached Standard grades Groundwood Standard unbleached Sulfate, bleached Standard grades Sulfate, unbleached Standard grades</p> <p><b>Gair Co., Canada Ltd.</b> 372 Bay Street, Toronto 1, Ont. Mills at: Campbellford, Ont. Frankford, Ontario <b>Agent: The Mead Sales Co., Inc.</b> Groundwood Standard unbleached Brand: Gair</p> <p><b>Gaspesia Sulphite Co., Ltd.</b> Main office: P. O. Box 1487, Quebec, Que. Mill at: Chandler, Que. <b>Agents: I. Hershman &amp; Co., Inc.</b> <b>Montmorency Paper Co., Inc.</b> Sulfite, unbleached Prime Strong Easy bleaching Screenings Sulfite Sold through I. Hershman &amp; Co. Brand: Gaspesia (Intends to manufacture bleached sulfite commencing 3rd quarter 1953)</p> <p><b>Great Lakes Paper Co., Ltd.</b> 159 Bay Street, Toronto, Ont. Mill at: Fort William, Ont. <b>Agent: Great Lakes Canadian, Inc.</b> 332 South Michigan Ave., Chicago, Ill. Sulfite, unbleached Standard grades Screenings, sulfite Brand: Great Lakes</p>	<p><b>Gulf Pulp &amp; Paper Co.</b> 65 St. Anne St., Quebec, Que. Mill at: Clarke City, Que. <b>Agent: Price &amp; Pierce, Ltd.</b> Groundwood Special unbleached Standard unbleached Screenings Groundwood Brand: Clarke City</p> <p><b>Halifax Power &amp; Pulp Co., Ltd.</b> Sheet Harbour, Nova Scotia Groundwood Standard unbleached</p> <p><b>Howard Smith Paper Mills Ltd.</b> 407 McGill St., Montreal 1, Que. Mills at: Cornwall, Ont. Crabtree Mills, Que. <b>Agent: Howard Smith Paper Mills Ltd.</b> (Pulp Sales Dept.) Sulfite, bleached Standard grades Soda Bleached Groundwood Standard unbleached Brands: Crabtree; Seagull; Stormont</p> <p><b>Howe Sound Pulp Co., Ltd.</b> Executive office: 999 W. Pender St., Vancouver, B. C. Mill at: Port Mellon <b>Agent: Perkins-Goodwin Co.</b> Unbleached Kraft</p> <p><b>Irving Pulp &amp; Paper Co., Ltd.</b> P. O. Box 280, Fairville, N. B. <b>Agents: Bulkley, Dunton Pulp Co.</b> <b>Parsons &amp; Whittemore, Inc.</b> (Screenings only) Sulfite, bleached Standard grades Screenings Sulfite Brand: St. John</p> <p><b>Lotbinerie Pulp &amp; Paper Co., Ltd.</b> Danville, Que. Mill at: Nicolet Falls, Que. <b>Agent: Parsons &amp; Whittemore, Inc.</b> Groundwood—unbleached (moist) Standard grades—tissue and board Brand: Lotbinerie</p> <p><b>MacMillan &amp; Bloedel, Ltd.</b> 837 W. Hastings St., Vancouver, B. C. Mill at: Port Alberni, B. C. <b>Agent: The Mead Sales Co., Inc.</b> Sulfate, unbleached Grades: Standard—strong; "A"—bleachable Brand: Bloedel Mill at: Nanaimo, B. C. <b>Agent: Price &amp; Pierce, Ltd.</b> Sulfate—special and standard grades, semi-bleached Brand: Harmac</p> <p><b>Marathon Paper Mills of Canada, Ltd.</b> Sales office: Marathon Corp., Rothschild, Wis. Mill at: Marathon, Ontario Bleached sulfate Semi-bleached sulfate Bleached hardwood sulfate</p> <p><b>Mersey Paper Co., Ltd.</b> Liverpool, Nova Scotia <b>Agent: Price &amp; Pierce, Ltd.</b> Sulfite Standard unbleached Side Run News Brand: Mersey</p> <p><b>Minas Basin Pulp &amp; Power Co. Ltd.</b> Hantsport, Nova Scotia <b>Agent: Price &amp; Pierce, Ltd.</b> Groundwood Special unbleached</p>	<p>Standard unbleached Brand: Minas Basin</p> <p><b>Mohawk Corp., Ltd.</b> P. O. Box 408, Riviere du Loup, Que. Mill at: Riviere du Loup <b>Agent: Gottesman &amp; Co., Inc.</b> Groundwood Standard unbleached</p> <p><b>Nairn Falls Pulp Co., Ltd.</b> Clermont, Que. Groundwood Standard unbleached Brand: Nairn Falls All sold under long term contracts</p> <p><b>Ontario Paper Co., Ltd.</b> Thorold, Ontario <b>Agents: Bulkley, Dunton Pulp Co., Inc.</b> <b>J. J. Nolan</b> <b>Parsons &amp; Whittemore, Inc.</b> <b>Perkins-Goodwin Co.</b> Sulfite, unbleached Special grades—glassine Standard grades Brand: Ontario</p> <p><b>Powell River Co., Ltd.</b> Standard Bank Bldg., Vancouver, B. C. Sales office: Powell River Sales Co., Ltd. Standard Bank Bldg., Vancouver, B. C. U. S. Sales office: <b>Powell River Sales Corp.</b> 400 Madison Ave., New York, New York Mill at: Powell River, B. C. Sulfite, unbleached Standard grades Brand: Powell River</p> <p><b>Price Bros. &amp; Co., Ltd.</b> Quebec, Que. <b>Agent: Price &amp; Pierce, Ltd.</b> Sulfite Standard bleached Standard unbleached Brand: Price Bros.</p> <p><b>Provincial Paper Ltd.</b> 388 University Ave., Toronto, Ont. Mill at: Port Arthur, Ontario <b>Agent: The Mead Sales Co., Inc.</b> Groundwood Standard unbleached Screenings Sulfite Brand: Provincial</p> <p><b>Quebec North Shore Paper Co.</b> Head office: 680 Sherbrooke St. W., Montreal, Que. Sales office: Ontario Paper Co., Ltd., Thorold, Ontario Mill at: Baie Comeau, Que. <b>Agents: Bulkley, Dunton Pulp Co., Inc.</b> <b>Perkins-Goodwin Co.</b> Sulfite, unbleached Special grades Standard grades Groundwood Standard unbleached</p> <p><b>Restigouche Co. Ltd.</b> c/o Fraser Companies, Ltd. 1010 St. Catherine St. W., Montreal 2, Que. Mill at: Atholville, N. B. Sulfite, bleached Dissolving and related grades Standard grades Screenings Sulfite Brands: Restigouche; Restophane; Resticose</p> <p><b>Richmond Pulp &amp; Paper Co. of Canada, Ltd.</b> Bromptonville, Que. <b>Agent: Price &amp; Pierce, Ltd.</b> Groundwood Standard unbleached Brand: Bromptonville</p>
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## As world demand for cellulose increases... Rayonier is ready

The revitalized industries of Japan and Europe will boost annual cellulose consumption throughout the world to more than 3,000,000 tons by 1955.

To meet this expansion, Rayonier has committed \$80,000,000 for improving and expanding plant facilities . . . achieving output increases of 6% in 1951, 7% in 1952 and expected 6% in 1953. A new \$25,000,-

000 Rayonier plant is under construction in Jesup, Georgia, which will bring Rayonier production to 50% of U.S.A. capacity.

New, improved types of cellulose . . . and new industrial expansion will combine in the coming years to create a staggering increase in cellulose consumption and newer and finer end products. Rayonier is ready . . . ready, willing and able.

# RAYONIER

EXPORT CORPORATION  
OVERSEAS CORPORATION

## WORLD MARKET WOODPULP DIRECTORY

### **St. George Pulp & Paper Co., Ltd.**

Mill at: St. George, N. B.  
P. O. Box 847, St. John, N. B.  
Agent: The Mead Sales Co., Inc.  
**Bulkley, Dunton Pulp Co.**  
Groundwood  
Bleached  
Unbleached  
Brand: St. George

### **St. Lawrence Corp., Ltd.**

Sales office:  
St. Lawrence Sales Co., Ltd.  
Sun Life Bldg., Montreal, Que.  
Mills at:  
Dolbeau, Que.  
East Angus, Que.  
Nipigon, Ont.  
Red Rock, Ont.  
Three Rivers, Que.  
Agent: Gottesman & Co., Inc.  
Sulfite, unbleached  
Standard grades  
Bleachable grades  
Sulfate, unbleached  
Standard grades  
Groundwood  
Standard unbleached

### **St. Raymond Paper, Ltd.**

1510 Drummond St., Montreal 25, Que.  
Mills at:  
Desbiens, Que.  
St. Raymond, Que.  
Agent: St. Raymond Sales Ltd.  
1510 Drummond St., Montreal, Que.  
Sulfite, unbleached  
Special grades  
Standard grades  
Groundwood  
Standard unbleached  
Screenings  
Sulfite  
Brand: St. Raymond

### **Soucy, Inc., F. F.**

Chemin du Lac, Co. Temiscouata, P. Que.  
Agent: Bulkley, Dunton Pulp Co.  
Groundwood  
Standard unbleached  
Brand: Snow Flake

### **Thorold Pulp Co., Ltd.**

Front Street  
Thorold, Ontario  
Groundwood  
Standard unbleached

## **FINLAND**

### **Ahstrom, A. O/Y**

Warkaus  
Representative: Pulp Sales Corp.  
Sulfite, unbleached  
Special grades  
Brands: Ahlstrom (Blue) Strong; Ahlstrom BL Bleachable; Ahlstrom EB Easy Bleaching

### **Eklof, Aug., A/B**

Borga  
Representative: Pulp Sales Corp.  
Sulfite, unbleached  
Special grades  
Standard grades  
Brands: Eklof (Green) Extra Strong; Eklof (Blue) Strong; Eklof BL Bleachable; also semi-prime, second and third qualities, and screenings

### **Elving, Anton**

Siuro  
Representative: Pulp Sales Corp.  
Groundwood (In Thin Sheets)  
Special unbleached—hardwood  
Standard unbleached  
Brand: Siuro

### **Enquist, J. W. O/Y, A/B**

Killinkoski  
Lielahki

### **Representative: Pulp Sales Corp.**

Groundwood (In thin sheets)  
Standard unbleached  
Brand: Killinkoski  
Sulfite, bleached  
Special grades  
Standard grades  
Brands: Sphinx (Red) for Rayon;  
Sphinx (Red) Extra Soft; Sphinx (Black) Soft; Sphinx (Blue) Strong; also semi-prime, second and third qualities and screenings.

### **Enso-Gutzeit O/Y**

Kaukopaa  
Kotka  
Tainionkoski  
Representative: Pulp Sales Corp.  
Sulfite, unbleached  
Special grades  
Standard grades  
Brands: Tornator (Green) (Seal) Extra Strong; Tornator (Seal) Strong; Tornator L&S (Seal) Light & Strong; Gutzeit (Green) Extra Strong; Gutzeit (Blue) Strong; also second qualities  
Sulfite, unbleached  
Special grades  
Brands: Tornator (Glassine); Tornator (Green) Extra Strong; Tornator (Blue) Strong; Tornator BL Bleachable; Tornator EB Easy Bleaching

### **Haarlan Selluloosa O/Y**

Lievestuore  
Representative: Pulp Sales Corp.  
Sulfite, bleached  
Special grades  
Standard grades—softwood, hardwood  
Brands: Haarla (Green) Extra Strong; Haarla (Blue) Strong; Haarla (Black) Soft; Haarla (Green) Glassine; Haarla Aspen (hardwood)

### **Jakobstads Cellulosa A/B**

Jakobstad  
Representative: Pulp Sales Corp.  
Sulfite, unbleached  
Special grades  
Standard grades  
Brands: Jakobstad (Green) Extra Strong; Jakobstad (Blue) Strong

### **Joutseno-Pulp O/Y**

Joutseno  
Representative: Pulp Sales Corp.  
Sulfite, unbleached  
Special grades  
Standard grades  
Brands: Jsssp (Green) Extra Strong; Jsssp (Blue) Strong; also second qualities

### **Kajaani O/Y**

Kajaani  
Representative: Pulp Sales Corp.  
Sulfite, unbleached  
Special grades  
Brands: Kajaani BL Bleachable; Kajaani EB Easy Bleaching; also semi-prime qualities and dry screenings

### **Kaukas Fabrik, A/B**

Kaukas  
Representative: Pulp Sales Corp.  
Sulfite, bleached  
Special grades  
Standard grades  
Brands: KF One Crown; Two Crown; Three Crown; Four Crown for viscose; KF One A; Two A for Acetate; KF (Blue) Strong; KF (Black) Soft; KF (Red) Extra Soft; also second and third qualities

### **Kemi, O/Y, A/B**

Kemi  
Representative: Pulp Sales Corp.  
Sulfite, unbleached  
Special grades

### **Standard grades**

Brands: Kemi (Green) Extra Strong; Kemi (Blue) Strong; Kemi BL Bleachable; also semi-prime, second qualities and dry screenings  
Sulfate, unbleached  
Special grades  
Standard grades  
Brands: Kemi (Green) Extra Strong; Kemi (Blue) Strong; Kemi W; Kemi L&S Light & Strong; Kemi Con Condenser; also second qualities

### **Kymmen, A/B**

Kuusankoski  
Representative: Pulp Sales Corp.  
Sulfite, bleached  
Special grades  
Standard grades  
Brands: Kuusankoski (Green) Extra Strong Bond; Kuusankoski (Blue) Strong

### **Lohja-Kotka, O/Y**

Lohja  
Representative: Pulp Sales Corp.  
Sulfate, unbleached  
Special grades  
Brand: Lohja (Blue) Strong

### **Nokia O/Y—Nokia A/B**

Nokia  
Representative: Pulp Sales Corp.  
Sulfite, unbleached  
Special grades  
Standard grades  
Brands: Nokia (Green) Extra Strong; Nokia (Blue) Strong; Nokia BL Bleachable

### **Oulu O/Y**

Oulu  
Representative: Pulp Sales Corp.  
Sulfate, unbleached  
Special grades  
Standard grades  
Brands: Oulu (Green) Extra Strong; Oulu (Blue) Strong; Oulu L&S Light and Strong; also second qualities  
Sulfate, semi-bleached  
Brands: Oulu Polaris 55, 65, 70

### **Rauma-Repolia O/Y**

Rauma  
Representative: Pulp Sales Corp.  
Sulfite, bleached (new process)  
Special grades  
Brands: Rauma A, AA high Alpha; Rauma R, RR, RRR, RC for Rayon; Rauma (Red) Extra Soft; Rauma (Black) Soft; Rauma (Blue) Strong; also semi-prime and second qualities

### **Rosenlew, W. and Co., A/B**

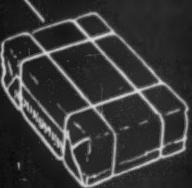
Bjorneborg  
Representative: Pulp Sales Corp.  
Sulfite, bleached  
Special grades  
Standard grades  
Brands: Rosenlew VR, VD, JS, VVE, VV, Alpha; Rosenlew R for Rayon, F for photo; Rosenlew (Red) Extra Soft; Rosenlew (Black) Soft; Rosenlew (Blue) Strong; also semi-prime qualities

### **Serlachius, G. A., O/Y**

Manntta  
Representative: Pulp Sales Corp.  
Sulfite, bleached  
Special grades  
Standard grades  
Brands: G.S. (AL) Alpha; G.S. (Red) Extra Soft; G.S. (Black) Soft; G.S. (Blue) Strong; G.S. (Green) Extra Strong; G.S. (Green) G Extra Strong Glassine  
Sulfite, unbleached  
Special grades  
Standard grades  
Brands: G.A.S. (Green) Extra Strong; G.A.S. (Blue) Strong; G.A.S. BL Bleachable

**SOUNDVIEW**

**BLEACHED SULPHITE PULP**



*Scott Paper Company*



## WORLD MARKET WOODPULP DIRECTORY

### **Stockfors, A/B**

Lovisa  
 Representative: **Pulp Sales Corp.**  
 Groundwood (in thin sheets)  
 Standard unbleached  
 Brand: Stockfors

### **Sunila O/Y**

Sunila  
 Representative: **Pulp Sales Corp.**  
 Sulfite, unbleached  
 Special grades  
 Standard grades  
 Brands: Sunila (Green) Extra Strong;  
 Sunila (Blue) Strong; Sunila 400;  
 Sunila L&S Light and Strong  
 Sulfate, semi-bleached  
 Brand: Sunila (Semi-T)

### **Svarta Bruk, O/Y, A/B**

Svarta  
 Representative: **Pulp Sales Corp.**  
 Groundwood (in thin sheets)  
 Standard unbleached  
 Brand: Svarta

### **Toppila, O/Y**

Oulu-Uleaborg  
 Representative: **Pulp Sales Corp.**  
 Sulfite, unbleached  
 Standard grades—softwood, wet pulp  
 Brand: Toppila (Blue) Strong; also  
 second and third qualities

### **Veitsiluoto O/Y**

Veitsiluoto  
 Representative: **Pulp Sales Corp.**  
 Sulfite, unbleached  
 Standard grades  
 Brands: VL (Green) Extra Strong; VL  
 (Blue) Strong; also semi-prime, sec-  
 ond and third qualities, and dry  
 screenings  
 Semi-chemical pulp  
 Special grades—wet pulp  
 Brands: VL (Blue) SA; VL (Black)  
 SA

### **Wartsila-Celulosa A/B**

Aanekoski  
 Representative: **Pulp Sales Corp.**  
 Sulfite, unbleached  
 Special grades  
 Brand: Aanekoski (Blue) Strong; also  
 second quality

### **Yhtyneet Paperitehtaat O/Y**

Jamsankoski  
 Representative: **Pulp Sales Corp.**  
 Sulfite, bleached  
 Standard grades—softwood, hard-  
 wood  
 Brands: Ilves (Blue) Strong; Ilves  
 (Black) Soft; Ilves Aspen (hard-  
 wood)  
 Sulfite, unbleached  
 Special grades  
 Standard grades  
 Brands: Walkiakoski (Blue) Strong;  
 Walkiakoski BL Bleachable

## **NORWAY**

### **Borregaard, Aktieselskapet**

Sarpsborg  
 Agent: **The Borregaard Co., Inc.**  
 Sulfite, bleached  
 Dissolving and related grades  
 Special grades  
 Standard grades  
 Brands: V.S.; Super V.S.; Super A-1;  
 A-1

### **Greaker Cellulosefabrik Aktieselskabet**

Oslo  
 Mill at Greaker  
 Agents: **Price & Pierce, Ltd.**  
**Pulp & Paper Trading Co.**  
 Sulfite, bleached  
 Special grades  
 Standard grades

Sulfite, unbleached (Sold by Pulp &  
 Paper Trading Co.)  
 Special grades  
 Brand: Greaker Sunshine

### **Hafslund Sulfitfabrik Aktieselskabet**

Sarpsborg  
 Agent: **The Borregaard Co., Inc.**  
 Sulfite, bleached  
 Special grades  
 Standard grades  
 Brands: Super Blue Bear; Blue Bear

### **Hurum Fabriker, Aktieselskabet**

Oslo  
 Agent: **Castle & Overton, Inc.**  
 Sulfate, bleached  
 Sulfate, unbleached

### **Katfos Fabriker, Aktieselskabet**

Geithus  
 Agent: **Castle & Overton, Inc.**  
 Sulfite, unbleached

### **Krogstad Cellulosefabrik Aktieselskabet**

Krogstad, pr. Mjondalen  
 Mjondalen  
 Agent: **Castle & Overton, Inc.**  
 Sulfite, bleached  
 Standard grades

### **Mjondalen Cellulosefabrik Aktieselskabet**

Mjondalen  
 P. O.: Drammen  
 Agent: **Perkins-Goodwin Co.**  
 Sulfite, bleached  
 Standard grades  
 Brand: Mjondalen BA

### **Moss Sulphate and Paper Mills**

Moss  
 Owners: M. Peterson & Son, A/S  
 Agent: **Parsons & Whittemore, Inc.**  
 Sulfate, unbleached  
 Standard grades  
 Brand: Moss

### **Tofte Cellulosefabrik Aktieselskabet**

Oslo  
 Agent: **Castle & Overton, Inc.**  
 Sulfite, bleached  
 Special grades  
 Standard grades

### **Toten Cellulosefabrik Aktieselskabet**

Nygaard Station  
 Gjovikbanen  
 Agent: **Castle & Overton, Inc.**  
 Sulfite, bleached  
 Standard grades  
 Brands: Toten TTT Prime Bleached

### **Vestfos Cellulosefabrik Aktieselskabet**

Vestfossen Railway Station  
 Vestfossen  
 Agent: **Castle & Overton, Inc.**  
 Sulfite, bleached  
 Special grades  
 Standard grades

### **Viul Tresliperi, A/S**

Viul Station  
 Honefoss  
 Agent: **Castle & Overton, Inc.**  
 Groundwood  
 Dry and Wet

## **EUROPEAN CONTINENT**

### **AUSTRIA**

#### **The Kellner-Partington Paper Pulp Co., Ltd.**

Hallein bei Salzburg, Austria  
 Mills at: Hallein & Villach  
 Agent: **The Borregaard Co., Inc.**  
 Sulfite, bleached  
 Dissolving and related grades  
 Special grades  
 Brands: Sp.C.; Super Bl.; Super BIDD

### **FRANCE**

L'Alfa S.A.  
 Paris, France  
 Agent: **Parsons & Whittemore, Inc.**  
 Bleached Esparo

### **GERMANY**

Zellstofffabrik Waldhof  
 Leberberg 9, Weisbaden 16, Germany  
 Agent: **Castle & Overton, Inc.**  
 Bleached Sulfite

### **HOLLAND**

N. V. Stroostofffabriek "Phoenix"  
 Veendam, Holland  
 Agent: **Parsons & Whittemore, Inc.**  
 Bleached Straw pulp

### **YUGOSLAVIA**

Fabrik Celuloza Prijedor  
 Sarajevo, Yugoslavia  
 Agent: **Gottesman & Co., Inc.**  
 Sulfite, unbleached  
 Standard grades

### **SWEDEN**

Bengtsfors Sulfitaktiebolag  
 Bengtsfors  
 Agent: **Parsons & Whittemore, Inc.**  
 Sulfite, bleached  
 Standard grades  
 Brands: Bengtsfors Prime Bl.; Dissolv-  
 ing and related grades  
 Brands: Corona Super I; Corona Super  
 II; Corona USA

### **Bergvik och Ala Aktiebolag**

Soderhamn  
 Agent: **Elof Hansson, Inc.**  
 Sulfite, unbleached (Mitscherlich)  
 Standard grades  
 Sulfate, unbleached  
 Standard grades  
 Brands: Goat S; Circle G; Goat Kraft;  
 Star; J

### **Billeruds Aktiebolag**

Saeffle  
 Agent: **Elof Hansson, Inc.**  
 Sulfite, bleached  
 Dissolving and related grades  
 Special grades  
 Standard grades  
 Brands: Billerud S; SS; SSS; VL;  
 Billerud Castle

### **Bure Aktiebolag**

Burea  
 Agent: **Cellulose Sales Co., Inc.**  
 Groundwood  
 Dry  
 Brand: Bure

### **Dynas Aktiebolag**

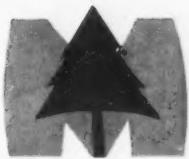
Waija  
 Agents: **Gottesman & Co., Inc.**  
**Perkins-Goodwin Co.**  
 Sulfate, unbleached  
 Special  
 Standard grades  
 Brands: Dynas; Dynas Chlorine No. 5

### **Eds Cellulosafabriks Aktiebolag**

Eds Bruk  
 Agent: **Elof Hansson, Inc.**  
 Sulfate, unbleached  
 Special grades  
 Brands: Eds Two Stars Soft A; Light  
 & Strong Kraft

### **Edsvalla Bruk, Aktiebolaget**

Edsvalla  
 Agent: **The Borregaard Co., Inc.**  
 Sulfite, bleached  
 Dissolving and related grades



# MARATHON

*High Quality*

## BLEACHED SULPHATE

BLEACHED HARDWOOD SULPHATE AND SEMI BLEACHED SULPHATE



*Manufactured by*

**MARATHON PAPER MILLS of CANADA, LTD.**

MARATHON, ONTARIO



Prompt Shipments from Marathon, Ontario; Menominee, Michigan; and Oswego, New York

*Sales Agent*

**MARATHON CORPORATION**

Rothschild, Wisconsin

# POWELL RIVER UNBLEACHED SULPHITE PULP



- ★ STRENGTH
- ★ COLOR
- ★ SERVICE
- ★ DEPENDABLE  
SUPPLY

POWELL RIVER  
SALES COMPANY  
LIMITED

— 100 STANDARD BUILDING, VANCOUVER, B. C. —

# Paper from native fibers

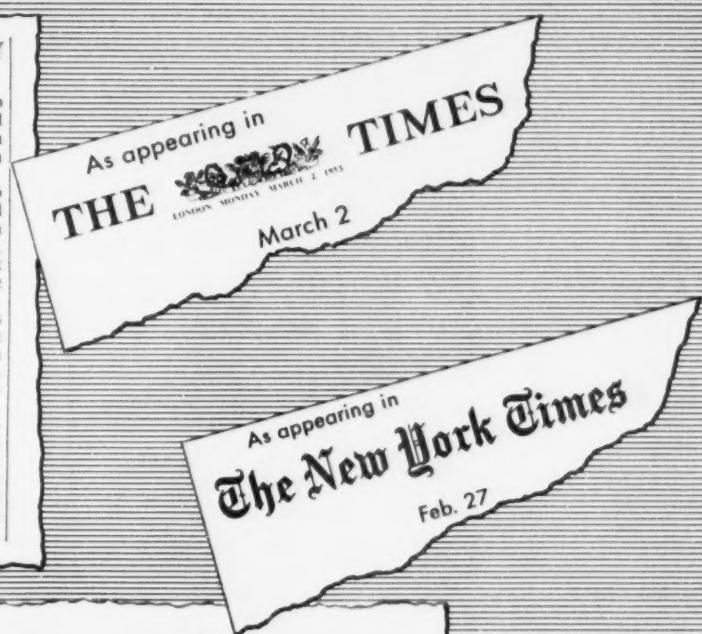
## PULP AND PAPER INDUSTRY DEVELOPMENT

NEW YORK, Feb. 28—A plan to help to develop the pulp and paper industry in Central and South America, Africa, and Asia with British and American money and skill has been announced here.

Lyddon and Company, Limited, wood pulp importers operating in Britain and the United States, and their American affiliates through common ownership, Parsons and Whittemore, said they were launching a programme to set up complete pulp and paper mills in those territories.

Mr. Karl Landegger, president of Parsons and Whittemore, said the companies' joint organization would develop projects based on pulping of short-fibred material found in many of the areas as well as offering equipment using standard grades of wood pulp.

He added that the organization would conduct preliminary surveys, deliver equipment that could not be produced locally, and supply technicians until local workers could take over. It would also assist local groups in obtaining raw materials and chemicals and selling the output.—Comtelburo.



## World Program Based on Point 4 Developed to Build Paper Mills

### Parsons & Whittemore Reveals It Would Be Active in South and Central America as Well as Africa and Asia

A plan to engineer, develop and build complete pulp and paper mill projects—in Point Four style—in various area of the world was announced yesterday by Parsons & Whittemore, Inc., of this city, supplier of pulp, paper and machinery for the industry.

In making the announcement Karl F. Landegger, president, said that the concern, which observes its centennial this year, would be active in South and Central America, Africa and Asia to develop projects based on pulping of short-fibred material found in many of these countries, in addition to offering equipment utilizing standard grades of wood pulp.

The company will contract to build a complete mill with any specified daily production and quality and will assist local groups in technical and management matters as well as financing.

Parsons & Whittemore recently concluded an agreement with the St. Regis Paper Company, a major

producer of pulp and paper, calling for cooperation between the two concerns in the development of pulp and paper mills outside the United States. Under this agreement St. Regis would consider undertaking management contracts in mills to be developed by Parsons & Whittemore, thus assuring capacity operation of a salable product.

Parsons & Whittemore, Inc., which is affiliated through common ownership with Lyddon & Co., Ltd., London, is supported in this field by The Black-Clawson Company, Hamilton, Ohio, paper-machinery manufacturer, and its divisions—Dilts Machine Works Fulton, N. Y., and Shartle Brothers Machine Company, Middletown, Ohio, and their subsidiary, the B-C International Ltd., London.

In Great Britain the organization is associated with Millspaugh, Ltd., Sheffield, pioneer in the suction press and vacuum pick-up in the paper industry, and its Canadian subsidiary, William Kennedy & a raw material.

Sons, Ltd.  
Parsons & Whittemore will conduct these operations, according to Mr. Landegger:

- ¶ Make a preliminary survey and prepare an appraisal report.
- ¶ Engineer the complete project.
- ¶ Produce and deliver all the pulp and paper machinery and other necessary equipment that cannot be produced in the country where the mill is to be built.

¶ Supply the necessary trained personnel to assure proper operation of the project until local workers can take over.

¶ Assist the local group in obtaining financing over a period of years.

¶ Assist the local group in obtaining the necessary raw materials and chemicals to operate the mill after it is built, as well as sell the output through Parsons & Whittemore's own offices in fourteen countries.

The various companies with which the concern is affiliated are the major suppliers of machinery for the pulp and paper factories projected by it. Their engineering staffs will be available for these projects in order to deliver a going plant to the clients.

The Parsons & Whittemore-Lyddon organization also maintains the Pulp and Paper Research Company, Ltd., in London.

Parsons & Whittemore has a contract for a mill in Brazil to manufacture bleached sulphite from eucalyptus trees. Also being completed is a pulp and paper mill in Costa Rica using abaca fiber as a raw material.



## LYDDON & CO.

35 New Bridge Street, London EC4, England

## PARSONS & WHITTEMORE

250 Park Avenue, New York 17

— A WORLD-WIDE ORGANIZATION —

1953 Review Number

PULP & PAPER

## WORLD MARKET WOODPULP DIRECTORY

<b>Special grades</b>	<b>Sulfate, bleached</b>	<b>Standard grades</b>
<b>Standard grades</b>	<b>Special grades</b>	<b>Screenings</b>
Brands: Edsvalla V.S.; Edsvalla Super; Edsvalla S.E.B.	Standard grades	Brands: LJ Two Crown Extra; LJ Two Crown; LJ One Crown; LJ 'K'
 <b>Essviks Aktiebolag</b>	 Sulfite, bleached	 <b>Mo &amp; Domsjo, Aktiebolag</b>
Sundsvall	Essvik "Special" Tissue Quality; Essvik "Three Star" Prime Quality; "Pulpcose" Dissolving grades	Main Office: Orndkolsvik, Sweden Sales Office: Strandvagen 1, Stockholm Mills at: Domsjo, Hornefors and Husum Agent: <b>Patel, Horton &amp; Co., Inc.</b>
Agent: <b>Cellulose Sales Co., Inc.</b>		Sulfite, bleached
Sulfite, bleached	Groundwood	Dissolving and related grades
Essvik "Special" Tissue Quality; Essvik "Three Star" Prime Quality; "Pulpcose" Dissolving grades	Special unbleached	Special grades
 <b>Forshaga Sulfit Aktiebolag</b>	 Standard unbleached	Standard grades—softwood, hardwood
Forshaga	Brands: Crowned Anchor, Golden Anchor, Special	Super grades—softwood, hardwood
Agent: <b>The Borregaard Co., Inc.</b>		Sulfate, bleached
Sulfite, bleached		Super grades—softwood, hardwood
Dissolving and related grades		Standard grades—hardwood
Special grades		Special grades
Standard grades		Brands: Husum Extra White Prime Bl. Kraft; Husum White Birch Prime Bl. Sulphite; White Horse Strong Prime Bleached Sulphite; White Horse Greaseproof Prime Bleached Sulphite; White Horse Soft Prime Bl. Sulphite; White Horse Birch Prime Bleached Sulphite; White Aspen Prime Bleached Sulphite; White Aspen Special Prime Bleached Sulphite; Modocell; Modosilk; Modosilk Extra; Modosilk Super; Modocord; Modoceta; Modolint
Brands: Forshaga V.S.; Forshaga Super; Forshaga		
 <b>Forss Aktiebolag</b>	 <b>Kopparfors Aktiebolag</b>	 <b>Munkedals Aktiebolag</b>
Kopmanholmen	Ockelbo	Munkedal
Agent: <b>Price &amp; Pierce, Ltd.</b>	Agent: <b>Perkins-Goodwin Co.</b>	Agent: <b>Elof Hansson, Inc.</b>
Sulfate, bleached	Sulfate, bleached	Sulfite bleached
Special grades	Special grades	Standard grades—softwood, hardwood
Standard grades	Super grades	Super grades—softwood, hardwood
Sulfate, unbleached	Standard grades	Standard grades—hardwood
Special grades	Sulfate, unbleached	Special grades
Brands: Forss Star; Forss OK	Brands: Norrland One Star; KHB 90; Norrland Three Star; KHB Condenser	Brands: Munkedal SGR; SAB
 <b>Gota Sulfitaktiebolaget</b>	 <b>Korsnas (Sagverks) Aktiebolag</b>	 <b>Munksjo, Aktiebolag</b>
Gota	Gavle 2	Jönköping
Agent: <b>Perkins-Goodwin Co.</b>	Agents: <b>Patel, Horton &amp; Co., Inc.</b>	Agent: <b>Gottesman &amp; Co., Inc.</b>
Sulfite, unbleached	Sulfite, bleached	Sulfate, unbleached
Standard grades	Dissolving and related grades	Standard grades
Glassine grades	Special grades	Standard grades
 <b>Hellefors Bruks Aktiebolag</b>	 Sulfate, unbleached	 Brands: Roburwite Prime Strong Bl. Mitscherlich Sulphite; Korsnas Super Tissue Prime Bl. Sulphate; Rayon Pulp-Korsnas Silk; Vigorwite Extra Prime Bl. Kraft; Manila Prime Kraft; Hercelite Prime Sulphate; Korsnas Kreft U.S.; Kraft "Z"
Hellefors	Special grades	
Agents: <b>Castle &amp; Overton, Inc.</b>	Standard grades	
Elof Hansson, Inc. (sulfite grades only)	Brands: Roburwite Prime Strong Bl. Mitscherlich Sulphite; Korsnas Super Tissue Prime Bl. Sulphate; Rayon Pulp-Korsnas Silk; Vigorwite Extra Prime Bl. Kraft; Manila Prime Kraft; Hercelite Prime Sulphate; Korsnas Kreft U.S.; Kraft "Z"	
Sulfite, unbleached		
Special grades		
Standard grades		
Sulfate, unbleached		
Standard grades		
Brands: HB; EB; HB Strong; HB Diamond		
 <b>Hissmofors Aktiebolag</b>	 <b>Kramfors Aktiebolag</b>	 <b>Munksunds Aktiebolag</b>
Krokom	Kramfors	Luleå
Agent: <b>Bulkley, Dunton Pulp Co., Inc.</b>	Agent: <b>Cellulose Sales Co., Inc.</b>	Agent: <b>Cellulose Sales Co., Inc.</b>
Sulfite, unbleached	Sulfite, unbleached (Mitscherlich)	Sulfate, unbleached
Standard grades	Kramfors "Puritan" Prime Glassine Quality (Shipped either 30 to 50% moist or air dry); Kramfors "AA" Prime Quality; Kramfors "B" Second Quality; Kramfors "A" Half Prime; Kramfors "K" refined Screenings	Munksund "50", "60" and "70" Prime Qualities
Brand: Elkhead	Sulfate, unbleached	Screenings
 <b>Hogfors Trasliperi, A/B</b>	Nensjo "45" Bleachable; Nensjo "60" Strong; Nensjo "K" Refined Screenings	Munksund "K" refined screenings
Hägganäs	Groundwood, Moist	Groundwood
Agent: <b>Gottesman &amp; Co., Inc.</b>	Byske Groundwood Mill	Luleå groundwood mill
Groundwood	Ulvik Groundwood Mill	
Special unbleached		
Standard unbleached		
 <b>Holmsunds Aktiebolag</b>	 <b>Mackmyra Sulfit Aktiebolag</b>	 <b>Oskarstrom Sulphite Mills Aktiebolag</b>
Holmsund	Mackmyra	Oskarstrom
Agent: <b>Cellulose Sales Co., Inc.</b>	Agent: <b>Bulkley, Dunton Pulp Co., Inc.</b>	Agents: <b>Gottesman &amp; Co., Inc.</b>
Sulfate, unbleached	Sulfite, unbleached	Elof Hansson, Inc.
Obbola "30" Prime Light & Strong Bleachable; Obbola "50", "60" and "70" Prime Strong Qualities; Obbola "K" Refined Screenings	Special grades	Sulfite
	Brand: MS	Easy bleaching
 <b>Hylte Bruks Aktiebolag</b>		Standard grades
Hyltebruk		Brands: Oskarstrom TT/S; TT; H; X
Agent: <b>Patel, Horton &amp; Co., Inc.</b>		
Sulfite, unbleached		
Standard grades		
Special grades		
Brands: Hylte Bruk H.1 Prime unbleached Sulfite; Hylte Bruk H.1.B.; Hylte Bruk H.2; Hylte Bruk H.3		
 <b>Iggensunds Bruk, Aktiebolaget</b>	 <b>Marma Langrors A/B</b>	 <b>Ostrands Aktiebolag</b>
Iggensund	Lottefors	Sundsvall
Agents: <b>Bulkley, Dunton Pulp Co., Inc.</b>	Agent: <b>Price &amp; Pierce, Ltd.</b>	Agent: <b>Cellulose Sales Co., Inc.</b>
Gottesman & Co., Inc.	Groundwood	Sulfate, bleached
Sulfite, bleached	Special unbleached	Ostrand "W88" Prime; Ostrand "WB" Half Prime; Ostrand "WII" Second Quality; Ostrand "X90" Prime Birch; Ostrand "XB" Half Prime Birch; Ostrand "HW" Semi-bleached, Soft & Hardwood; Ostrand "X-II" Second Quality Birch
Standard grades	Brand: Lottefors L	Sulfate, unbleached
		Ostrand "Special" and Ostrand "40" Light Colored Bleachable; Ostrand "50", "60" and "70" Prime Strong Qualities; Ostrand "H" Combined Soft & Hardwood; Ostrand Birch Prime Hardwood
 <b>Marma Langrors A/B</b>	 <b>Marma Verken</b>	
Marma Verken	Agent: <b>Price &amp; Pierce, Ltd.</b>	
Agent: <b>Price &amp; Pierce, Ltd.</b>	Sulfate, unbleached	
Sulfate, unbleached	Special grades	
Standard grades	Standard grades	
Brands: Marma LJ Kraft; Marma LJ Kraft "50" Insulating	Brand: Marma LJ Kraft; Marma LJ Kraft "50" Insulating	
 <b>Marma Langrors Aktiebolag</b>	 <b>Wallyvik</b>	 <b>Rottneros Bruk, Aktiebolaget</b>
Wallyvik	Agent: <b>Price &amp; Pierce, Ltd.</b>	Rottneros
Agent: <b>Price &amp; Pierce, Ltd.</b>	Sulfite, unbleached	Agent: <b>Elof Hansson, Inc.</b>
Sulfite, bleached	Special grades	Groundwood
Standard grades		Standard unbleached—wet

# **CELLULOSE SALES COMPANY**

INCORPORATED

250 PARK AVENUE, NEW YORK 17, N.Y.



## *Quality Brands* **WOOD PULP**

**BLEACHED SULPHITE**

*Paper and Dissolving grades*

**STRONG and EASY BLEACHING**

**UNBLEACHED SULPHITE**

**STRONG UNBLEACHED and**

**BLEACHED KRAFT**

**GROUND WOOD**

## WORLD MARKET WOODPULP DIRECTORY

### Scharins-Soner Aktiebolaget

Clemensnas  
Agent: **Elof Hansson, Inc.**  
Groundwood  
Standard unbleached—dry  
Brand: Skelleftea

### Skonviks Aktiebolag

Skonvik  
Agent: **Cellulose Sales Co., Inc.**  
Sulfite, bleached (Mitscherlich)  
Skonvik "190" Bond grade; Skonvik "G" Glassine grade; Skonvik "Crown" Book grade

### Statens Skogsindustrier, Aktiebolaget

Stockholm  
Agent: **Perkins-Goodwin Co.**  
Sulfite, unbleached  
Special grades  
Standard grades  
Brand: Kalix Royal

### Stjernfors-Stalldalen Aktiebolaget

Stalldalen  
Agent: **Elof Hansson, Inc.**  
Sulfite, unbleached  
Standard grades  
Brand: Stalldalen SS

### Stora Kopparbergs Bergslags A/B

Falun  
Agent: **Stora Kopparberg Corp.**  
Sulfite, unbleached  
Standard grades  
Sulfite, bleached  
Super grades  
Brands: Stora IA Prime Strong; Stora Quality 32

### Storviks Sulfit Aktiebolag

Ockelbo  
Agent: **Pagel, Horton & Co., Inc.**  
Sulfite, unbleached  
Special grades  
Standard grades  
Brands: HS; HS2; HS Extra; Storvik Strong

### Stroms Bruks Aktiebolag

Stromsbruk  
Agents: **Bulkley, Dunton Pulp Co., Inc.**  
**Castle & Overton, Inc.**  
Sulfite, bleached  
Dissolving and related grades  
Standard grades  
Brand: Stroms

### Sunds Aktiebolag

Sundsvall  
Agent: **Cellulose Sales Co., Inc.**  
Sulfite, unbleached  
Strong Mitscherlich and Easybleaching qualities; Sund "I" Prime Mitscherlich; Sund "SU" Half Prime Mitscherlich; Sund "Three Crown" Prime Easybleaching; Sund "Two Crown" Half Prime Easybleaching; Sund "K" Refined Screenings

### Svano Aktiebolag

Svanobruk  
Agents: **Gottesman & Co., Inc.**  
**Perkins-Goodwin Co.**  
**Elof Hansson, Inc.**  
Sulfite, unbleached  
Special grades  
Standard grades  
Brands: White Swan; White Swan LN; H; S; IIB; LN/H

### Svartviks Aktiebolag

Sundsvall  
Agent: **Cellulose Sales Co., Inc.**  
Sulfite, bleached  
Svartvik "Select"  
"Pulpcose" Dissolving and High Alpha Acetate Pulps

### Svenska Cellulosa Aktiebolaget

Stockholm

### Agent: Cellulose Sales Co., Inc.

See separate listings for:  
Essviks Aktiebolag  
Holmsunds Aktiebolag  
Kramfors Aktiebolag  
Munksunds Aktiebolag  
Ostrands Aktiebolag  
Skonviks Aktiebolag  
Sunds Aktiebolag  
Svartviks Aktiebolag

### Aktiebolag Tegefors Verk

Hjärpen  
Agent: **Price & Pierce, Ltd.**  
Sulfite, bleached  
Special grades  
Standard grades  
Brands: Polar Bear "G" Greaseproof Glassine; Polar Bear "Strong"; Polar Bear "Standard"; Polar Bear "Soft"; Polar Bear "Birch" (hardwood)

### Uddeholms Aktiebolag

Uddeholm  
Mills at: Skoghall near Karlstad  
Agent: **Perkins-Goodwin Co.**  
Sulfite, bleached  
Dissolving and related grades

### Special grades

Sulfate, bleached  
Dissolving and related grades  
Special grades  
Brands: Alba; Ultra; Raya; Lintra; Cordicel; V-pulp

### Wifstavarfs Aktiebolag

Wifstavarf  
Agents: **Gottesman & Co., Inc.**  
**Elof Hansson, Inc.**  
**Perkins-Goodwin Co.**  
Sulfite, unbleached  
Special grades  
Standard grades  
Sulfate, unbleached  
Standard grades  
Brands: Crown WW; Crown WWK; Crown WK; Crown WWL; WWK; WL; WK

### Wikmanshytte Bruks Aktiebolag

Wikmanshyttan  
Agent: **Gottesman & Co., Inc.**  
Sulfite, bleached  
Special grades  
Standard grades  
Brands: Thurbo

## IMPORTERS AND AGENTS OFFERING MARKET WOODPULP

### Acer & Co., Inc.

Conway Bldg., Chicago, Ill.  
Acer, McLernon, Inc.  
Canada Cement Bldg.  
Montreal Que., Canada  
Canada  
Bathurst Power & Paper Co., Ltd.  
Dryden Paper Co., Ltd.  
Bowater's Newfoundland Pulp & Paper Mills, Ltd.

### Borregaard Co., Inc.

290 Madison Ave., New York 17, New York

Norway  
Borregaard, Aktieselskapet  
Hafslund Sulfitfabrik, Aktieselskapet  
Sweden  
Edsvalla Bruk, Aktiebolaget  
Forshaga Sulfit, Aktiebolag

### Austria

The Kellner Partington Paper Pulp Co., Ltd.

### Bulkley, Dunton Pulp Co.

295 Madison Ave., New York 17, New York  
Branches:  
120 S. LaSalle St., Chicago, Ill.  
American Natl. Bank Bldg., Kalamazoo, Mich.

### United States

Puget Sound Pulp & Timber Co.  
St. Helens Pulp & Paper Co.  
St. Marys Kraft Corp.  
Riegel Carolina Corp.

### Canada

Irving Pulp & Paper, Ltd.  
Ontario Paper Co., Ltd.  
Quebec North Shore Paper Co.  
St. George Pulp & Paper Co. Ltd.  
F. Flo Soucy

### Sweden

Hissmofors Aktiebolag  
Iggesunds Bruk, Aktiebolaget  
Mackmyra Sulfit-Aktiebolag  
Stroms Bruks Aktiebolag

### Castle & Overton, Inc.

630 Fifth Avenue, New York 20, N. Y.  
Branches:  
380 High Street, Holyoke, Mass.  
Drexel Bldg., Philadelphia, Pa.

### United States

Champion Paper & Fibre Co.  
Hollingsworth & Whitney Co.  
West Virginia Pulp & Paper Co.

### Norway

A/S Hurum Fabriker  
A/S Katfos Fabriker  
A/S Krogstad Cellulosefabrik  
Krogstad, pr. Mjondalen  
A/S Toffe Cellulosefabrik  
A/S Toten Cellulosefabrik  
A/S Vestfos Cellulosefabrik  
A/S Viul Tresliperi

### Sweden

Hellefors Bruks Aktiebolag  
Stroms Bruks Aktiebolag

### Germany

Zellstofffabrik Waldhof

### Cellulose Sales Co., Inc.

250 Park Ave., New York 17, New York

### Sweden

Bure Aktiebolag  
Svenska Cellulosa Aktiebolaget  
Essviks Aktiebolag  
Holmsunds Aktiebolag  
Kramfors Aktiebolag  
Munksunds Aktiebolag  
Ostrands Aktiebolag  
Skonviks Aktiebolag  
Sunds Aktiebolag  
Svartviks Aktiebolag

### United States

Chesapeake Corp. of Virginia

### Clarke, Moore, Hill & Kenny

400 Madison Avenue, New York, N. Y.  
(See Northeastern Paper Products, Ltd.)  
Overseas sales representatives of  
Northeastern Paper Products, Ltd., who  
are sales representatives of Anglo-  
Canadian Pulp & Paper Mills, Ltd.;  
Anglo-Newfoundland Development  
Co., Ltd.; Gaspesia Sulphite Co., Ltd.

### Consolidated Paper Sales, Ltd.

Sun Life Bldg., Montreal, Que., Canada  
U. S. Distributor:  
Pulp & Paper Trading Corp.  
Canada  
Consolidated Paper Corp., Ltd.

# WOOD PULP PAPER

Offices and representatives in 60 cities in the United States, Europe, Latin America, Africa, and Asia



BULKLEY, DUNTON & CO., INC.

BULKLEY, DUNTON PULP CO., INC.

BULKLEY, DUNTON PAPER CO., S. A.

BULKLEY, DUNTON CELLULOSE EXPORTS, INC.

BULKLEY, DUNTON PAPER (FAR EAST) CO., INC.

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In New England—CARTER, RICE & CO. CORPORATION

and STORRS & BEMENT COMPANY



**BULKLEY, DUNTON**  
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295 MADISON AVENUE, NEW YORK 17, N. Y.

## WORLD MARKET WOODPULP DIRECTORY

**Donnacona Sales Co.**

Donnacona, Que.  
Canada  
Donnacona Paper Co., Ltd.

**Gottesman & Co., Inc.**

100 Park Ave., New York 17, New York

**United States**

Champion Paper & Fibre Co.  
Container Corp. of America  
Crown Zellerbach Corp.  
Eastern Corporation  
Gaylord Container Corp.  
International Paper Co.  
National Container Corp.  
Oxford Paper Co.  
Rayonier, Inc.  
Riegel Paper Corp.  
St. Regis Paper Co.

**Canada**

Donnacona Paper Co., Ltd.  
Mohawk Corp., Ltd.  
St. Lawrence Corp., Ltd.

**Sweden**

Dynas Aktiebolag  
Hogfors Träsliperi, A/B  
Iggensunds Bruk Aktiebolaget  
Munksjö Aktiebolag  
Svanö Aktiebolag  
Wifstavarfs Aktiebolag  
Wikmanshytte Bruks Aktiebolag

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Fabrik Celuloza Prijedor

**Great Lakes-Canadian, Inc.**

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**Hansson, Inc., Elof**

220 East 42nd St., New York 17, New York

**Sweden**

Bergvik och Ala A.B.  
Billeruds A.B.  
Eds Cellulosafabriks A.B.  
Hellefors Bruks A.B.  
Munkedals A.B.  
Oskarstrom Sulphite Mills A.B.  
Rottneros Bruk A.B.  
A.B. Scharins-Soner  
A.B. Stjernfors-Stalldalen  
Svanö A.B.  
Wifstavarfs A.B.

**Hershman & Co., Inc., L.**

135-153 Minor St., New Haven, Conn.  
Branch:  
16 E. 43rd St., New York 17, New York  
Canada  
Anglo-Canadian Pulp & Paper Co., Ltd.  
Anglo-Newfoundland Development Co., Ltd.  
Gaspeia Sulphite Co., Ltd.

**Howard Smith Paper Mills Ltd.**

(Pulp Sales Department)  
407 McGill Street, Montreal 1, Quebec  
Canada  
Alliance Paper Mills Ltd.  
Canada Paper Co.  
Howard Smith Paper Mills Ltd.

**Mead Sales Co., Inc., The**

230 Park Ave., New York 17, N. Y. and  
20 N. Wacker Dr., Chicago 6, Ill.

**United States**

Brunswick Pulp & Paper Co.  
The Mead Corp.  
Oxford Paper Co.

**Canada**

Abitibi Power & Paper Co., Ltd.  
Gair Company Canada, Ltd.  
St. George Pulp & Paper Co., Ltd.  
MacMillan & Bloedel Ltd.  
Alaska Pine & Cellulose Ltd.

**Montmorency Paper Co., Inc.**

400 Madison Ave., New York 17, New York  
Canada

Anglo-Canadian Pulp & Paper Mills,  
Ltd.  
Anglo-Newfoundland Development  
Co., Ltd.  
Gaspeia Sulphite Co., Ltd.

**Nolan, J. J.**

101 Park Avenue, New York  
Canada  
The Ontario Paper Co., Ltd.

**Northeastern Paper Products Ltd.**

P. O. Box 1456, Quebec, Que., Canada  
U.S. Agent: Montmorency Paper Co., Inc.  
Canada  
Anglo-Canadian Pulp & Paper Mills,  
Ltd.  
Anglo-Newfoundland Development  
Co., Ltd.  
Gaspeia Sulphite Co., Ltd.

**Pagel, Horton & Co., Inc.**

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Storviks Sulfit Aktiebolag  
Hylte Bruks Aktiebolag

**Parsons & Whittemore, Inc.**

250 Park Ave., New York 17, New York  
Representatives:  
Mr. Earle W. Goman  
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Mr. E. H. Jacobson  
Hulman Bldg., Dayton 2, Ohio  
Mr. Arthur H. Fitzgerald  
238 Glendale Blvd., Parchment  
Kalamazoo 15, Michigan

**Canada**

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St. John Sulphite Ltd.  
Lothiniere Pulp & Paper Co., Ltd.

**Norway**

Moss Sulphate and Paper Mills

**Sweden**

Bengtsfors, Sulfitaktiebolag  
Bure Aktiebolag

**Holland**

N. V. Stroostofffabriek "Phoenix"  
France  
L'Alfa, S. A.

**United States**

Chesapeake Corp. of Virginia

**Perkins-Goodwin Co.**

30 Rockefeller Plaza, New York 20, N. Y.  
Chicago office:  
1745 Chicago Daily News Bldg., Chicago 6, Ill.

**United States**

Southland Paper Mills, Inc.  
Spaulding Pulp & Paper Co.

**Canada**

Howe Sound Pulp Co., Ltd.  
Ontario Paper Co., Ltd.  
Quebec North Shore Paper Co.

**Sweden**

Dynas Aktiebolag  
Sulfitaktiebolaget Gota  
Aktiebolaget Iggensunds Bruk  
Koppafors Aktiebolag  
Statens Skogsindustrier, Akt.  
Svanö Aktiebolag

**Norway**

Uddeholms Aktiebolag  
Wifstavarfs Aktiebolag

**United States**

Mjondalen Cellulosefabrik, Akt.

**Powell River Sales Co., Ltd.**

Standard Bank Bldg., Vancouver, B. C.,  
Canada  
U. S. Office:  
Powell River Sales Corp.  
400 Madison Ave., New York, New York  
Canada  
Powell River Co., Ltd.

**Price & Pierce, Ltd.**

60 East 42nd St., New York 17, N. Y.

Branch: Sun Life Bldg., Montreal, P. Q.,  
Canada  
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Gulf Pulp & Paper Co.  
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Lohja-Kotka O/Y  
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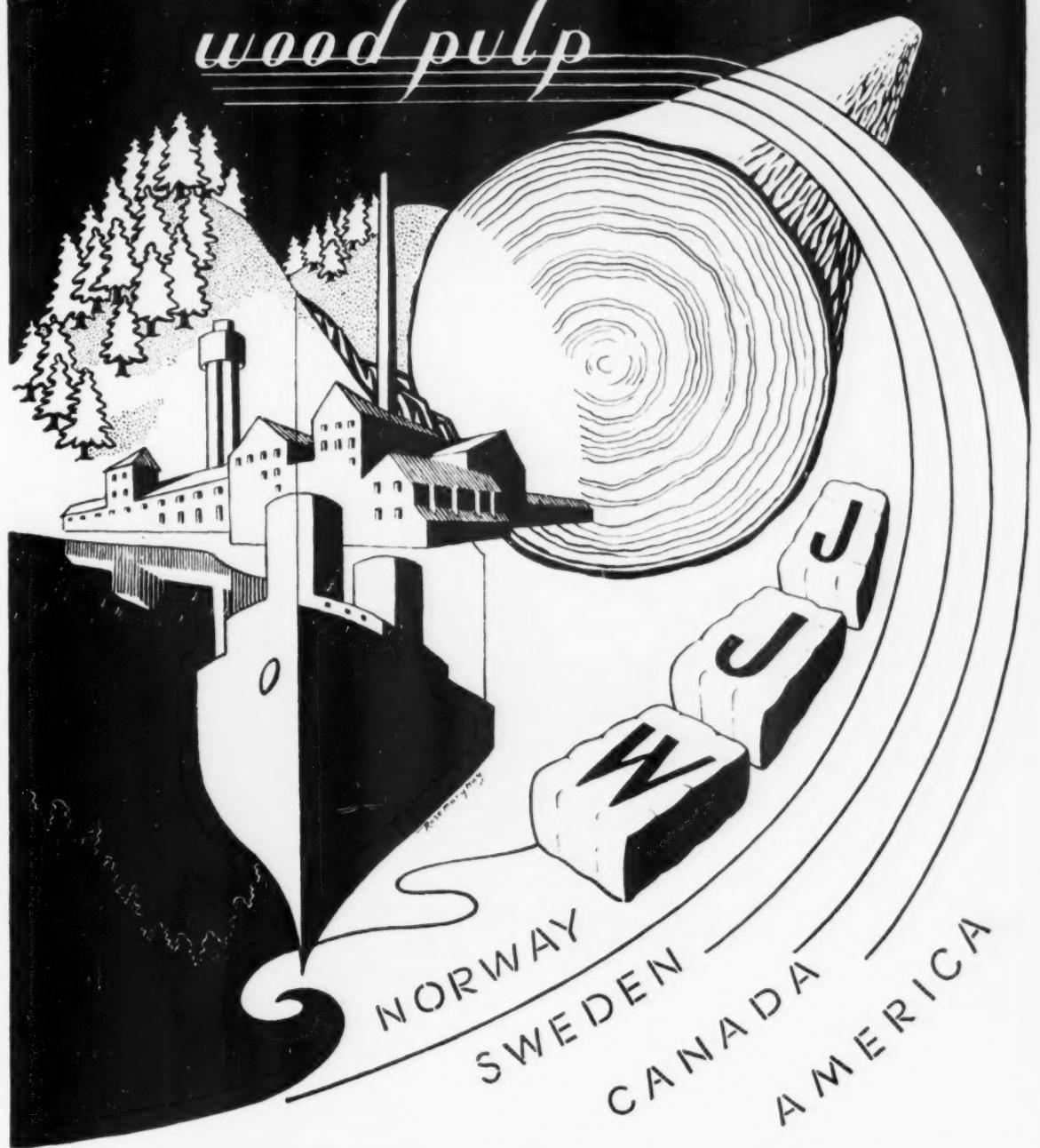
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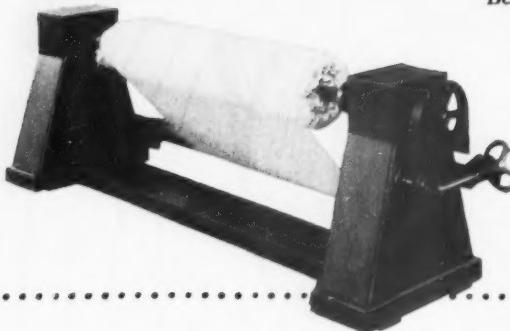
**MANCHESTER**

# IOI STANDARD LET-OFFS and TAKE-UPS



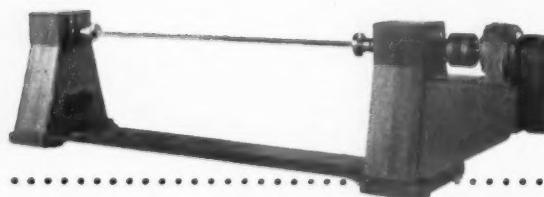
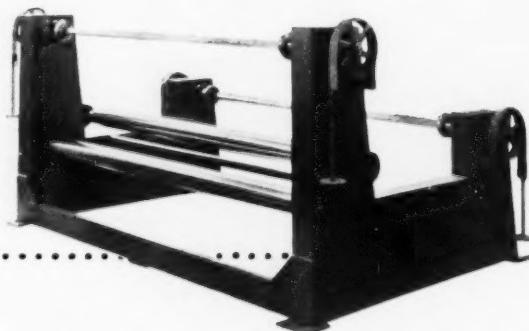
for TEXTILES, PAPERS, FILMS and FOILS

- In continuous handling and processing of web materials, proper unwinding and winding are of utmost importance. Because of their advanced engineering and accurate construction, IOI standard Let-Offs and Take-Ups provide the precision and control so essential to end-product quality in these operations.



**Single Roll Friction-Type Let-Off**—This IOI Let-Off provides a convenient method of holding tension on a mill roll of fabric or paper being fed into a system. The stand is so arranged to also provide for quick roll changes in minimum time. Construction is of fabricated members welded to a base, affording the same ruggedness as all other IOI products. Brake adjustment is by manual handwheel control, and affords easy tension control by the operator. These stands can also be furnished at a slightly lower cost by use of counterweighted friction holdback.

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**Single Roll Take-Up**—An efficient windup stand of the bullhead pedestal type, this IOI system has the necessary provision for the application of wide varieties of system drives. The base, bullheads, winding shafts, and shaft mountings duplicate the unwinding stands. The drive illustrated is controlled by a tension unit which integrates the speed of the winding roll shaft in direct proportion to the roll diameter buildup. These stands are also used in tandem with a tension control accumulator and pull-out rolls to provide continuous winding.

These standard units (with or without drives) are available now, ready for prompt shipment. For complete information write:

**INDUSTRIAL Ovens, Inc.**

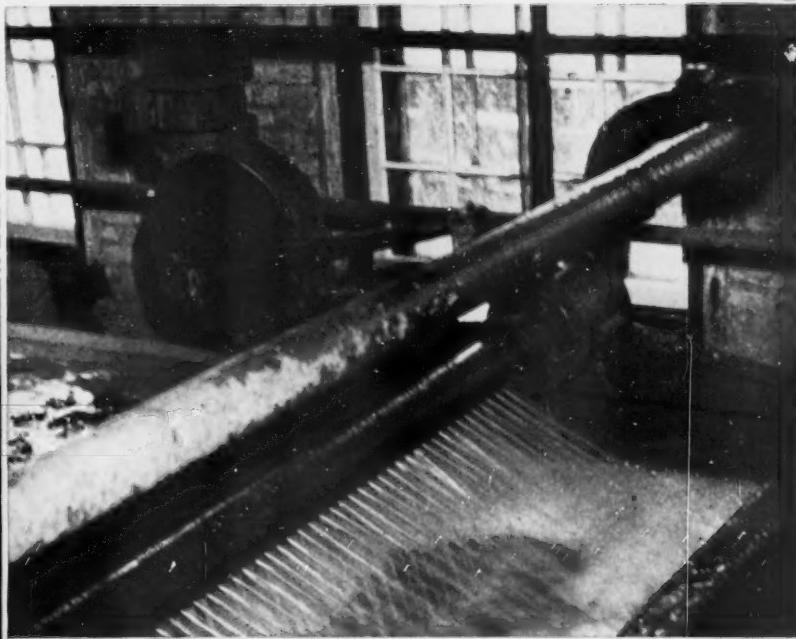
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# **REVOLUTIONIZING the operation of Flat Screens**

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At present in operation in several mills in Canada, the Karlstrom Persson Shower is proving to be one of the greatest innovations in the Pulp and Paper industry. Consisting of a perforated pipe extending the whole length of the screens, oscillated at a slow speed, the Karlstrom Persson Shower operates at very low water pressure and distributes water over the entire surface of screens, breaking up fibre bundles and separating them out for more complete screening.

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Screening is free and complete. The plates are washed clean, leaving no matted fibre to dry and plug the slots during shut-downs and interruptions. They are ready to screen immediately.

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Because of free and proper screening, high pressure hosing is eliminated. Dirt is not driven through the plates, nor is good fibre flushed out with the tailings.

## **LOWER COSTS**

With free screening, and little or no hosing required, labour costs are greatly reduced. The saving in labour alone can pay for this equipment in a comparatively short time.

## **HIGHER PRODUCTION**

Because plates are kept clean and screening continuously at maximum efficiency, greatly increased production is obtained.

References as to the success of present installations are available on request.



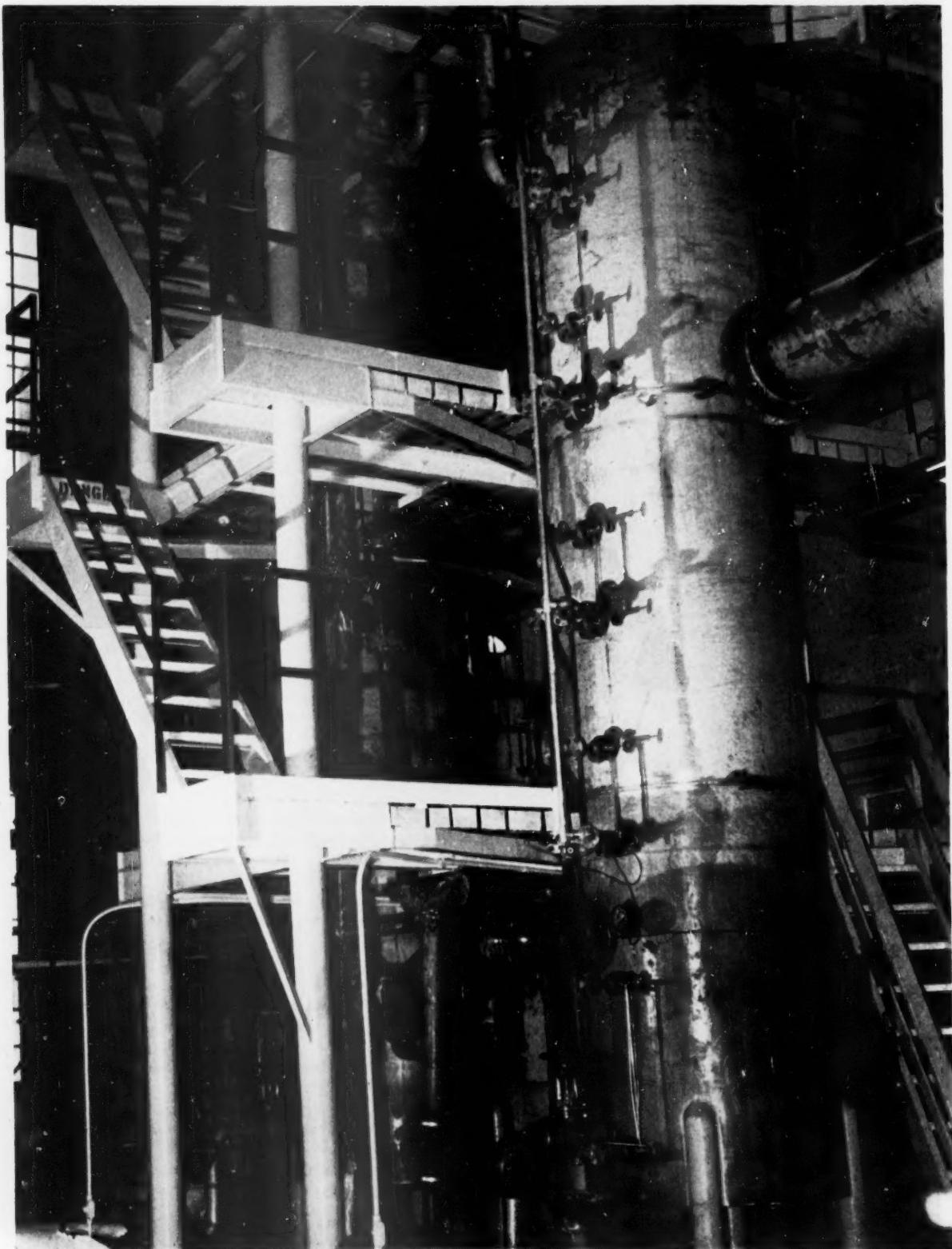
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CHEMIPULP K-C

# ACID MAKING



Two bubble cap absorption towers 24' high in the Chemipulp K-C acid plant at St. Regis Paper Company mill Deferiet, N.Y.

# *in the SULPHITE PROCESS*

¶ In the first two advertisements in this series we gave description of the CHEMIPULP K-C Sulphur Burning and SO<sub>2</sub> Gas Cooling Systems. The next step in acid making for the sulphite process is the absorption of the cooled gas in a suitable base such as calcium, sodium, magnesium oxide or ammonia.

¶ The CHEMIPULP K-C system employs two reversible pressure bubble cap absorption towers with gas compressor such as the Nash or Roots-Connersville type. Therefore the absorption towers are under pressure which gives more accurate control of the strength of the raw or system acid.

¶ The SO<sub>2</sub> gas enters under the lowest compartment of the absorption towers and the unabsorbed gas in the first or strong absorption tower can be returned to the second tower either at the bottom or between the second and third trays and the resulting CO<sub>2</sub> and inert gases are vented from the top of the weak tower, plug cocks being used for the control of the flow of gases.



This article is the third of a series being published by Chemipulp Process Inc. in PULP & PAPER magazine in the interest of generally improving the sulphite process. Correspondence regarding or discussing the articles will be welcomed.

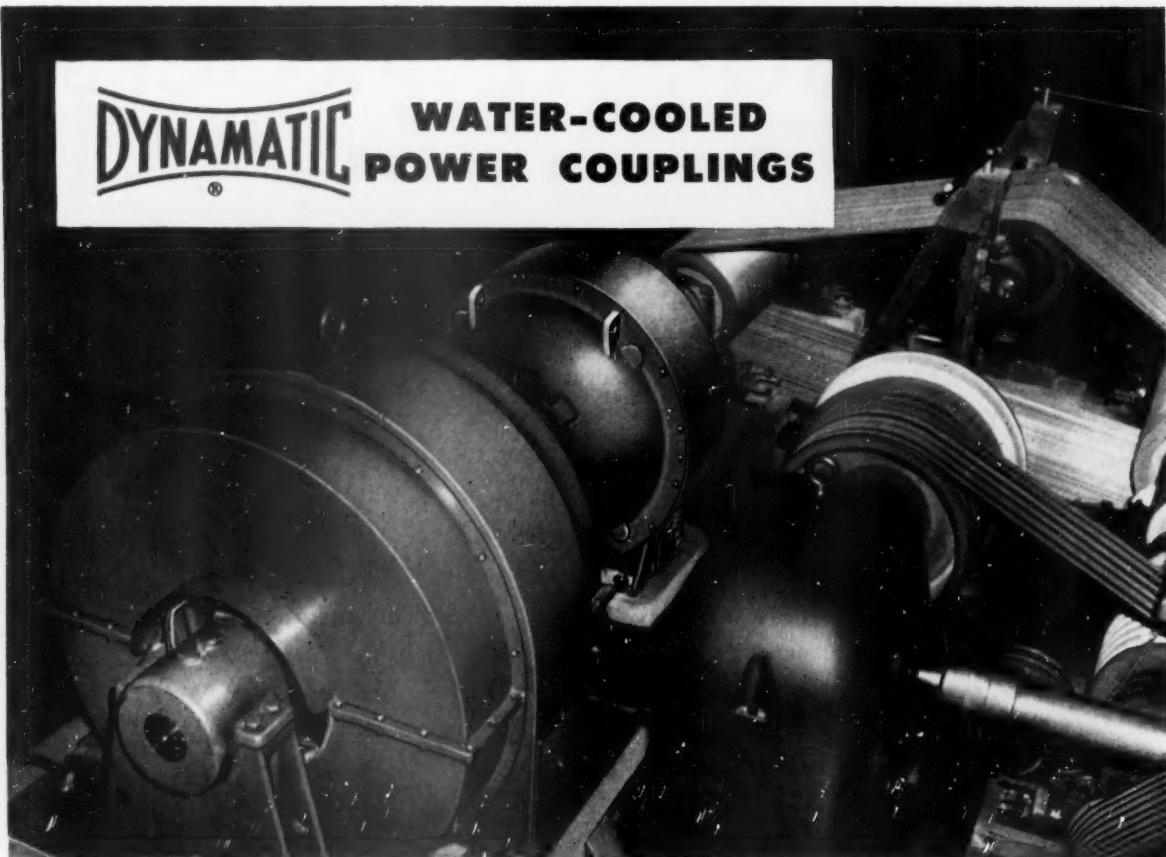
A LIMITED NUMBER OF A REVISED EDITION OF "CHEMIPULP SULPHITE MILL OPERATION," THE HANDBOOK OF PRACTICAL OPERATING PROBLEMS WILL BE AVAILABLE UPON COMPLETION OF THIS SERIES OF ARTICLES.

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POWER COUPLINGS

## Cut Broke Time on Paper Making Machines

Dynamatic eddy current rotating equipment has been used for many years by the paper industry for better speed control, uniformity, and increased tonnage.

In the installation above, a large Canadian newsprint manufacturer is using a Model 90W Dynamatic Water Cooled Coupling, driven from a 600 hp motor, to drive a Fourdrinier paper machine at speeds up to 1100 fpm. In addition to accurate speed control with quick response, power factor correction is obtained on this Dynamatic installation through the use of a 1200 rpm synchronous motor.

The excellent speed control and accurate tension provided by Dynamatic equipment on this application has resulted in reduced broke time, outstanding uniformity, higher production, and minimum operating costs.

Dynamatic engineers will welcome an opportunity to discuss the application of eddy current rotating equipment in your plant.



Write for your copy of Bulletin GB-1 which describes and illustrates the basic Dynamatic units.



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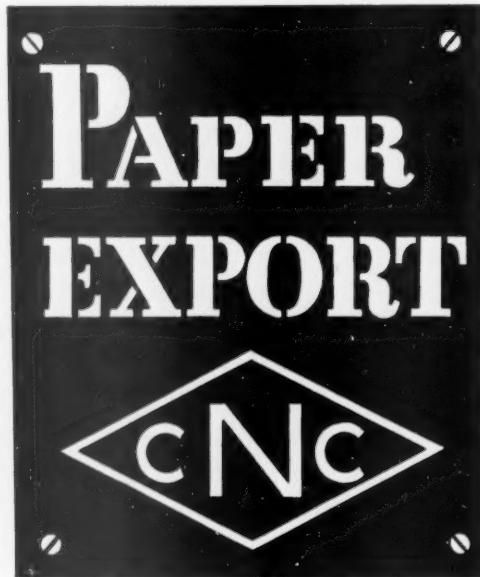
KNOT and REJECT  
SHREDDER

The brochure illustrated above makes interesting and informative reading matter. It describes the various applications of the GRUENDLER BASIC SYSTEM of pulp refining, especially the principle and economy of the Gruendler Turbo Pulper and Turbo Refiner. Have your secretary write for Bulletin No. 58. No obligation, of course.

Other Gruendler literature worthy of your attention . . . give details regarding Knot and Reject Shredders, Paper Shredders, Salt Cake Pulverizers, Intensive Blenders, Hot Lime Breakers, Lap Shredders, Bark and Wood Hogs and Coal Handling Equipment.



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## NORTH AMERICA

### UNITED STATES New Records Forecast

(The U. S. A.'s 160,000,000 persons use an average of 393 lbs. of paper per person per year.)

IN THE FIRST QUARTER of 1953, the paperboard production of United States mills was running about 10 percent higher than in 1952's corresponding period, but the paper mills were about 2 percent behind their previous year's mark. In the second quarter this year, however, paper production picked up in April, and was at least a percentage point ahead of 1952 while the paperboard mills similarly widened their margin.

### Nationwide List of New Mills and Expansion in U.S.A. Through Year 1955 Compiled by PULP & PAPER Editors

So, with a third of the year 1953 gone by, it was still pretty much touch-and-go whether total paper production would pass 1952. There were optimistic observers in the industry who forecast a new all-time record, a little better than the 26,048,000 short tons record of 1951, and, of course, beating 1952's 24,400,000.

There were many more who fully expected the 1952 record to be beaten, with at least 25,000,000 tons manufactured.

#### Records Forecast

The National Production Authority climbed out on a limb by flatly predicting two new all-time records in 1953:

1. U. S. paper and paperboard consumption of nearly 31,500,000 tons—about 2,500,000 tons above 1952 and nearly 1,000,000 tons above 1951.

2. U. S. domestic production in all grades of 26,300,000 tons. That would be

well above the 1951 all-time record.

It indicated a possible third record—imports of newsprint, virtually all from Canada, of 5,200,000 tons. This would be several thousands above the record if actually attained.

Significant is the fact that this NPA forecast, under the name of W. LeRoy Neubrech, special assistant to the director of the Forest Products Division of NPA, and in past years a pulp and paper specialist in the Department of Commerce, before NPA became a part of it, was based on these reasons:

The first three-months record of the industry in 1953.

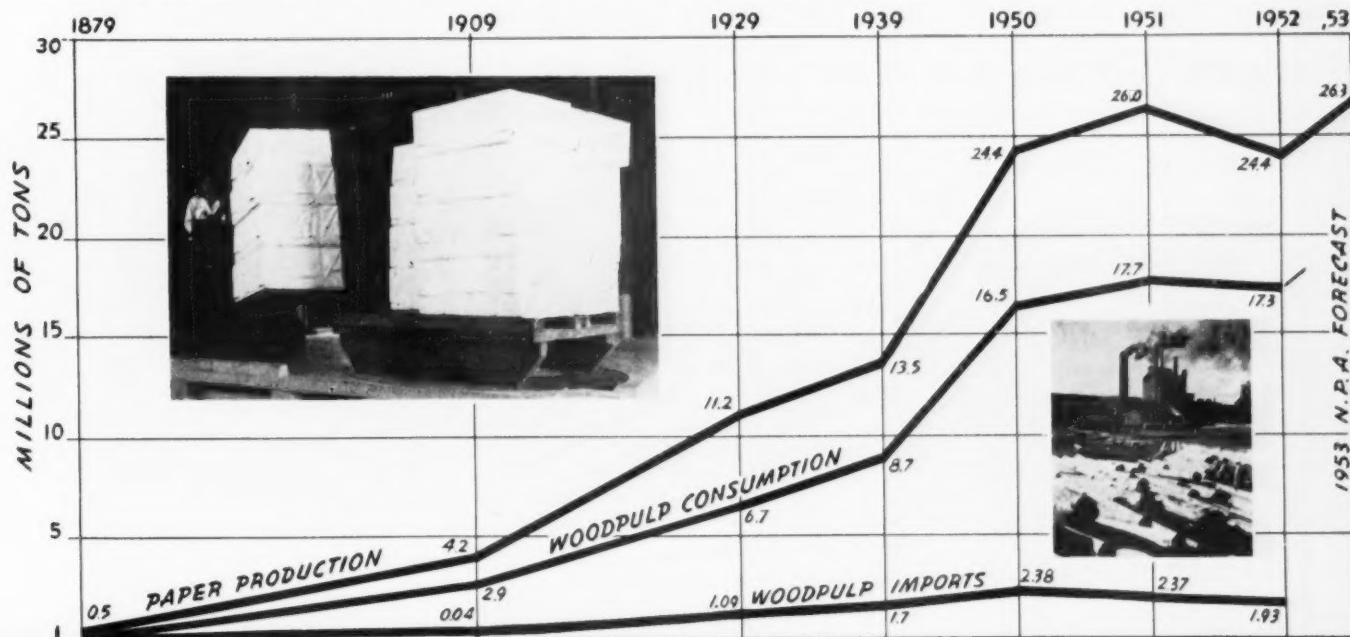
Private economic forecasts.

In this connection it is well to remember that a comparatively short-lived slump was responsible for the lower production in 1952 after two previous years of steady increase. The low point was in July for both paper (73 percent of ca-

## PULP & PAPER IN U. S. A.—TRENDS OVER SEVENTY YEARS

This chart prepared by PULP & PAPER from U. S. census statistics shows long-term trend is steadily upward—also shows increasing independence for pulp supply

The National Production Authority has forecast a new high record in U. S. Paper and Paperboard Production for 1953 of 26,300,000 tons, one-third of a million tons above the previous high record in 1951. But regardless of minor dips, the overall longterm increase in production has been sharply upward over the years. The population was only 50,000,000 in the U.S.A. in 1879, when paper production was only 452,000 tons. Paper production has increased over 50 times for a population now past 150,000,000 mark and still climbing. Population alone will force consumption of paper higher. Woodpulp production has multiplied over 700 times on this chart over the seventy year period. There was no sulfite or kraft in that first 1879 production, but there was by 1909. Significant is the fact that the U.S. is becoming more self-sufficient in pulp production. Woodpulp imports did not keep pace with the woodpulp consumption line, it has even declined in the past two years shown.



pacity) and paperboard (71 percent). Paperboard had been ranging in low 80's all through the first half of the year. But it came back strong in the fall months. Paper, on the other hand, had good months in early 1952—in the high 90's for the first three months—but it didn't come back as strongly as board in the fall. The 1952 year's average, however, was 89.6 percent for paper and 85 percent for board. For the first three months of 1953, it was over 94 for both.

### 1952 Vs. 1951—At a Glance

At a glance, these are significant figures for 1952 vs. 1951:

U.S.A. DATA		1952	1951	PERCENT CHANGE
<i>Pulpwood (in thousands of short tons):</i>				
Receipts	27,358	27,778	1,5	
Consumed	26,462	26,522	0.2	
<i>Woodpulp (in thousands of short tons):</i>				
Produced	16,467	16,524	0.3	
Imported	1,917	2,361	-18.0	
Exported	212	200	6.0	
Consumed	18,192	18,685	-2.6	
for paper	17,274	17,731	-2.6	
for non-paper	752	714	5.3	
<i>Market Woodpulp (in thousands of short tons):</i>				
Produced (U.S.)	1,861	1,912	-3.0	
From Canada	1,038	1,348	-23.0	
From Europe	359	484	-26.0	
Consumed	2,904	3,466	-16.0	
for paper	2,252	2,742	-17.9	
for non-paper	752	714	5.3	
<i>Waste Paper (in thousands of short tons):</i>				
Consumed	7,881	9,071	-13.1	
<i>Paper and Paperboard (in thousands of short tons):</i>				
Total produced	24,413	26,048	-6.3	
paper only	10,856	11,623	-6.3	
paperboard	10,776	11,620	-7.3	
wet machine	137	148	-7.4	
building type	2,604	2,655	-1.8	
<i>Wholesale Sales (in millions of dollars):</i>				
Paper and paper products	2,195	2,400	-8.5	

(The above table is compiled from Census Bureau, N.P.A. and U.S. Pulp Producers Assn. data).

But the leveling off of the last few years does not offer such striking comparisons as when placing current figures against those of pre-war, wartime and immediate post-war (World War II) years.

Total paper production is now over twice what it was in the late thirties! Four times what it was in 1919! Eight times what it was at the turn of the century!

U. S. pulpwood production is four times

### HOW THE STATES RANK IN WOOD AND PAPER PRODUCTION

This table especially prepared by PULP & PAPER shows how the states rank in pulpwood and paper and paperboard production for year 1951—latest available figures. Washington state again leads in pulpwood production (and also pulp) and New York leads in papermaking. Louisiana is second in both classifications. Maine, formerly second in pulpwood, slipped to fifth place, with three Southern states moving ahead. The number of pulp mills and the number of paper and board mills are shown also, for each state.

	PULPWOOD (cords produced)	NO. OF PULP MILLS	PAPER & BOARD (tons produced)	NO. OF PAPER & BOARD MILLS
1. Wash.	2,614,004	28	1,975,000	114
2. La.	2,555,806	9	1,860,000	10
3. Fla.	2,409,155	8	1,745,000	50
4. S. C.	1,787,554	4	1,725,000	56
5. Me.	1,712,248	28	1,575,000	54
6. Ga.	1,705,008	5	1,525,000	56
7. Wis.	1,589,159	38	1,465,000	23
8. Ore.	1,579,159	12	1,270,000	10
9. Ala.	1,179,305	7	1,150,000	44
10. N. C.	767,408	5	1,075,000	17
11. Ark.	764,842	2	1,030,000	10
12. Miss.	699,848	6	1,005,000	3
13. N. Y.	695,366	41	875,000	27
14. Va.	673,095	11	870,000	12
15. Minn.	507,219	11	750,000	83
16. Pa.	501,393	10	675,000	10
17. N. H.	457,982	6	650,000	17
18. Mich.	446,475	9	570,000	9
19. Texas	302,364	4	524,000	5
20. Md.	165,239	1	500,000	7

Statistics from U. S. Census Bureau and American Paper and Pulp Association, especially compiled and arranged by PULP & PAPER

what it was just 20 years ago, and U. S. woodpulp production twice what it was just before World War II and nearly five times what it was in 1919.

If you compare with 75 years ago, total paper production has increased more than 50 times, pulp more than 700 times.

The U. S. A. will have 193,000,000 people by 1975, the experts on population growth calculate. Even if the expanding uses for paper and pulp were halted, which is totally unexpected, the population increase alone will continue to force an increase in

woodpulp and paper demand and use. It has increased over 60 percent in just the past six years while population increased only 10 percent. It is not difficult to visualize what 40 million more people in this country in just 22 years will require.

### Independent of Overseas

In the NPA report it was stated that:

"It is apparent that the U. S. A. is growing more and more independent of overseas woodpulp. In 1952, total consumption of woodpulp for all uses amounted to slightly over 18 million tons. Of this quantity, 1.9 million tons were imported, of which only 360,000 tons came from overseas, the remainder from Canada. The large expansion in domestic facilities during the past couple of years, as well as projects now under way or scheduled, may mean the U. S. A. will be largely independent of overseas pulp supplies."

At Paper Week 1953, the American Paper and Pulp Association reported more than \$400,000,000 would be spent by the U.S. industry this year in new mills and expansion. In seven years since World War II, the industry had already spent more than three billions of dollars on expansion, trying to catch up with the fast leaping demands.

By the end of 1955, U. S. woodpulp capacity is to reach 22,366,000 short tons a year if all projects carry through, and that compares with 17,123,000 at the end of 1950. Paper, other than newsprint, planned an increase of 1,520,705 tons to 14,083,000 tons per year while paperboard was increasing 1,750,000 to 13,667,000. In

### HOW THE STATES RANK IN SALES, TAXES, WAGES, ETC.

This table especially prepared by PULP & PAPER shows this data for the pulp and paper industry in the United States by leading states. It is for the year 1951, the last year in which such breakdowns are available.

INVESTMENT	SALES	TAXES	WAGES	NO. OF WORKERS
1. Wis.	\$597,306,600	\$653,417,581	\$88,864,791	22,161
2. N. Y.	594,911,900	650,797,923	88,508,517	22,251
3. Me.	460,373,300	503,620,768	68,492,425	15,153
4. Pa.	416,118,000	455,208,125	61,908,306	15,728
5. Ohio	406,788,000	445,001,665	60,520,227	15,501
6. Mich.	400,474,700	438,095,293	59,580,959	14,919
7. Mass.	393,104,000	430,032,190	58,484,378	14,643
8. La.	375,066,000	410,299,700	55,800,759	8,137
9. Wash.	318,339,600	348,244,422	47,361,241	11,859
10. Va.	250,510,500	274,043,456	37,269,911	10,333
11. N. J.	224,946,300	246,077,755	33,466,575	11,379
12. Minn.	224,635,300	245,737,540	33,420,305	12,201,529
13. Fla.	184,889,500	202,258,020	27,507,091	13,132
14. N. C.	184,080,900	201,373,460	27,386,791	14,206,908
15. Miss.	156,775,100	171,502,553	23,324,347	18,309,668
16. Ill.	135,844,800	148,606,061	20,210,424	17,540,796
17. Ga.	130,246,800	142,482,184	19,377,576	16,109,661
18. N. H.	127,012,400	138,943,945	18,896,241	15,211,444
19. Ala.	123,000,500	134,555,167	18,299,503	14,365,153
20. Ore.	121,414,400	132,820,069	18,063,530	14,342,763



*Throughout  
the WORLD!*

# ROSS AIR SYSTEMS

**are increasing production capacity  
and operating efficiency!**

Wherever pulp and paper is being made—from Alaska to Australia—you find ROSS Air Systems operating in nearly all departments of the mill. The constantly growing need for larger output in the face of steadily increasing costs for labor, fuel and maintenance have made ROSS Systems standard equipment in progressive mills everywhere to insure maximum operating efficiency and improved working conditions.

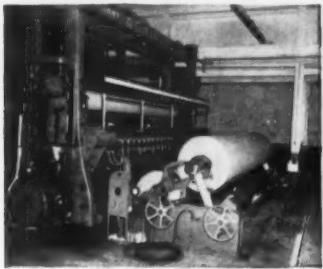
You can have an experienced ROSS engineer recommend and design a custom made air system for your particular needs.

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ROSS-HOOPER Totally Enclosed Hood



ROSS Calender Cooling



ROSS Pulp Dryer

newsprint in the U.S., 31,000 tons were added in 1952 to an existing 1,052,000 (end of 1951), with additions of 34,000 this year and a whopping 217,000 in 1954.

Totals for all paper and paperboard additions as projected by the Writing Paper Mfgs. Assn., using the end of 1951 as the base—total of 26,321,000 tons capacity at that time—are:

Added during 1952—501,000 tons.  
Adding during 1953—1,205,000 tons.  
Adding during 1954—525,000 tons.

### Expansion in the U. S. Scheduled Through 1955

(A Survey by PULP & PAPER Editors)

A tremendous program of expansion in the United States in woodpulp, paper and paperboard still is being carried out and is scheduled to carry on through 1955, at least. Of course, there is the possibility that projects not even started may be delayed or even reduced or discarded. But there are few of these, compared to the whole.

In the South alone, over 2,000 tons per day capacity had come into production in the first half of 1953—all in paper and board—and at least 250 more would be completed by the end of 1953, with 600 tons more coming in 1954 and 1955. As to market pulp, some 350 tons were coming into production this year and potentially 1,000 more tons in the next two years.

The 1953 projects include in the South:

The St. Regis Jacksonville expansion of 300 tons kraft paper daily.

A 200-ton paper expansion at Continental Can's Hopewell, Va., mill.

A 250 tons daily expansion at Halifax Paper's Roanoke Rapids mill.

Similar big pulp and paper expansion at St. Joe Paper in St. Joe, Fla.

This was already in production and there was more paper and board capacity to come in 1953:

National Container's 500-ton board mill at Valdosta, Ga.

A 100 tons pulp and a paper machine at West Virginia's Covington, West Va. (Southern production in character whether you call it the "South" or not) and more

semi-chemical for board at West Virginia's Charleston mill.

A new big machine and semi-chemical at Union Bag bringing capacity in that Savannah mill to 1750 tons by August.

A 135 in. cylinder board machine in Manchester Board & Carton Co., Richmond, Va.

Meanwhile market pulp production at I.P.'s Natchez, Miss., mill was doubled by 300 tons, and though built for dissolving, was also sold as paper pulp.

Come 1954 and here's more tons from the South:

High yield pulp process expansion at Southern Paperboard Corp., Port Wentworth, Ga.

Rayonier's 300 ton daily capacity market pulp mill at Jesup, Ga.

Buckeye Cellulose Corp.'s (Procter & Gamble) 200-ton market pulp mill at Foley, Fla.

Bowaters Southern Corp. mill at Calhoun, Tenn., making 360 of newsprint, 280 of kraft pulp and 300 groundwood.

Rome Kraft Corp.'s 600 tons daily of board at Rome, Ga.

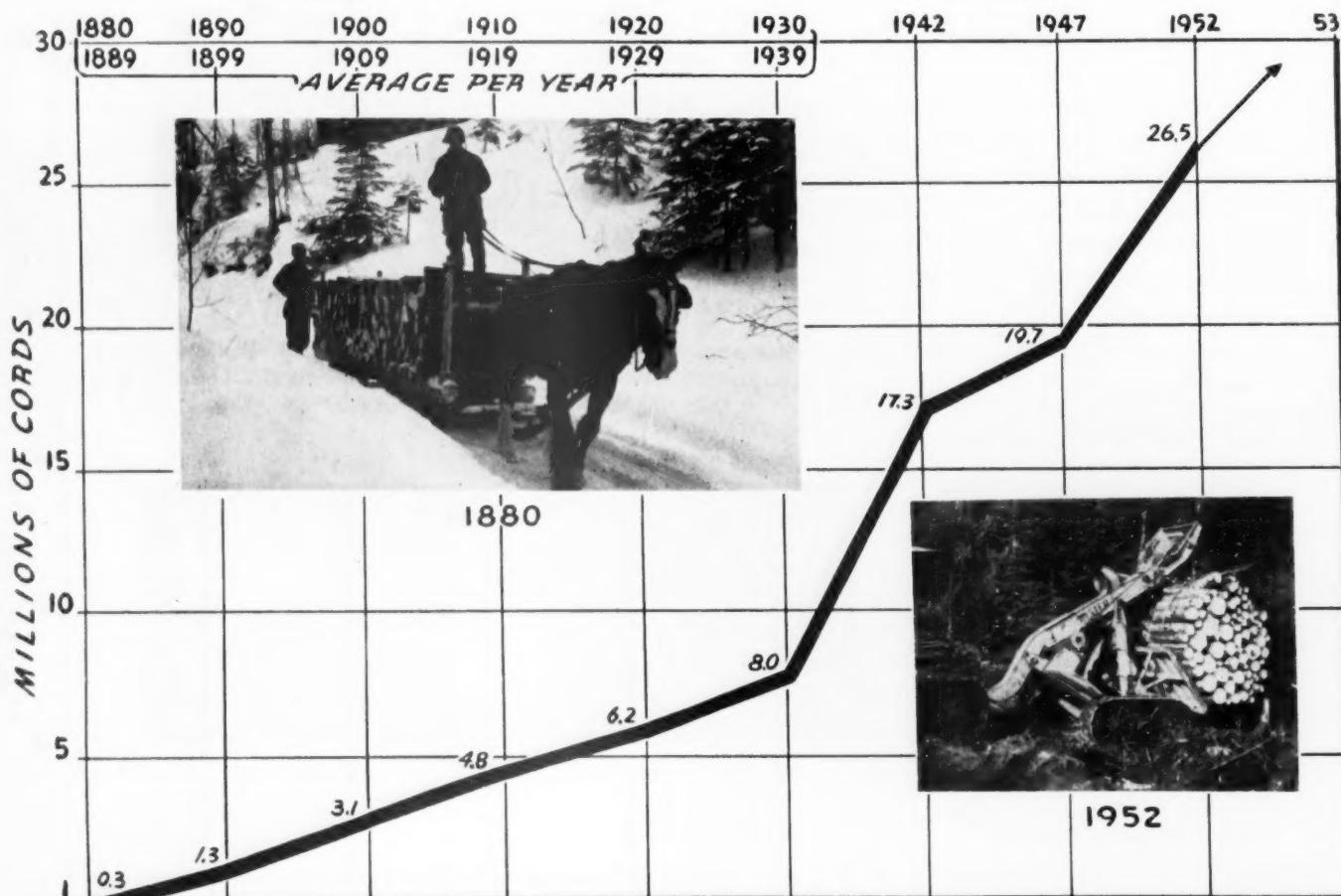
## PULPWOOD CONSUMPTION IN THE UNITED STATES

This chart prepared by PULP & PAPER from U. S. census statistics shows the record over three-quarters of a century

With intensive tree-farming, doubling of production per acre in many areas, and other modern forest practices, rapidly improving the outlook for wood resources, some experienced observers foresee much greater pulpwood production in the decades to come. Population growth alone will require more woodpulp. One industry expert has forecast North America will be using 2½ times as much wood for pulp and other forest products by 1975. The recent record for pulpwood consumption in the U.S., has been steadily upward, despite zig-zagging:

1952—26,462,000 cords.  
1951—26,522,000 cords.  
1950—23,627,000 cords.

1949—19,945,000 cords.  
1948—21,189,000 cords.  
1947—19,714,000 cords.



Possibly the Valite Corp. projected small bagasse mill for newsprint and pulp in Lockport, La.

Brunswick Pulp & Paper's further improvements at Brunswick, Ga., upping new 1952 bleached kraft pulp expansion of 450 tons to about 500.

Union Bag's further 250 tons in 1954 additions to bring the Savannah mill to a world record 2,000 tons.

Rubberoid Co.'s projected mill in Dallas. Then comes 1955 with:

East Texas Pulp & Paper's 250 tons at Evadale, Tex., of alternatively market pulp or board.

Olin Industries' Spencer, La., market pulp mill of 200 tons.

It should be noted that significant expansion completed in 1952 in the South included Riegel Carolina's 200 tons chlorine dioxide bleached kraft pulp, the big new machine of Brown Paper Mills at Monroe, La., Hudson's new machine at Palatka, Fla., Pensacola's new machine for St. Regis, two new board mills in Pryor, Okla., for Certain-Teed and National Gypsum, the Brunswick additions already mentioned, the Moss Point, Miss., machine for I.P., Hollingsworth & Whitney's expansion including new machine at Mobile, other I.P. mill increases and speedups of many machines, adding to production.

#### Pacific Coast Expansion

Turning to the Pacific Coast, another section where expansion has been vigorously pushed, a big part is in British Columbia (covered in the Canadian section). But:

Weyerhaeuser brings in this September a new 300 tons market bleached kraft pulp mill in Everett, Wash., and last August started up a 200 tons bleached kraft paperboard mill in Longview, Wash.

Scott Paper Co. in January 1954 expected to start up its biggest tissue machine of the industry alongside its 1951-acquired Soundview Pulp property in Everett, of 600 tons bleached sulfite capacity, when purchased. A second tissue machine already is planned, and there may be more.

West Tacoma Newsprint Co. was starting up its second newsprint machine in postwar years in mid-1953 of 100 tons daily.

Ketchikan Pulp & Paper Co., Ward Cove, Alaska, managed and partly owned by Puget Sound Pulp & Timber, was three months ahead of schedule on a new bleached sulfite pulp mill of 300 tons at the outset, start-up in 1954.

Potlatch Forests Inc., Lewiston, Idaho, extended paper machine, doubling potential capacity of its two-year old mill in early 1953.

Publishers' Paper Co., Oregon City, Ore., made improvements increasing capacity by 4,000 tons annually.

Crown Zellerbach and its affiliate, Fibreboard Products, continued speedups and improvements in several of their mills.

Rayonier completed about a 10 percent expansion of Olympic Peninsula mills' production with new equipment.

St. Regis continued pulp mill improvements as its new Tacoma paper mill speedup was achieved.

# U. S. NEWSPRINT TRENDS

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PULP & PAPER, 1953

THIS TABLE, prepared exclusively by PULP & PAPER, shows dramatically what has happened to the newsprint industry in the United States over the past two decades.

It was back in 1924 that Canada first made more newsprint than the U.S.; now it makes more than five times as much and about 85 percent of Canada's total production goes to U.S. newspapers.

The flight of the newsprint industry to Canada resulted from lack of tariff protection, denied for this paper grade alone in interests of publishers whose political influence was considerable. If a 1913 column of U.S. mills were shown here, it

would be necessary to list 65 companies. In 1926 there were only 38; by 1946, only seven. Most of the U.S. mills went into higher grades, bringing higher return. The development of a Southern newsprint industry and assured long term newspaper contracts have been principal factors in turning U.S. production upward again.

Twelve mills are making newsprint regularly this year. A number are owned by newspapers or else partly owned. The estimated total of 1,179,000 tons to be made this year by these mills, in the data collected by this magazine, is within 2 percent of the Newsprint Service Bureau's estimate of capacity. The slight discrepancy apparently is due to variations in mill reports. See NEWSPRINT REVIEW section for more information.

#### COMPANIES PRODUCING NEWSPRINT IN U. S.

	1926	1946	1948	1951	1952	1953
	Tons, Estimated Capacity					
Alexandria Paper Co. ....	15,000	.....	.....	.....	.....	.....
Algonquin Paper Co. ....	29,000	.....	.....	.....	.....	.....
Cliff Paper Co. ....	13,000	.....	.....	.....	.....	.....
Consolidated Water P. & Pa. ....	102,000	.....	.....	100,000	115,000	120,000
Coosa River Newsprint Co. ....	174,000	200,000	190,000	205,000	210,000	210,000
Crown Zellerbach Corp. ....	56,000	.....	.....	.....	.....	.....
Dells Pulp & Paper Co. ....	12,000	.....	.....	.....	.....	.....
Escanaba Paper Co. ....	170,000	.....	.....	.....	.....	.....
Finch, Provin & Co. ....	44,000	10,000	.....	.....	.....	.....
Flambeau Paper Co. ....	14,000	.....	14,000	.....	.....	.....
Gary Paper Mills, Inc. ....	.....	.....	.....	8,000	10,000	10,000
Gilman Paper Co. ....	17,000	.....	.....	.....	.....	.....
Gould Paper Co. ....	30,000	.....	.....	.....	.....	.....
Grandfather Falls Co. ....	11,000	.....	.....	.....	.....	.....
Great Northern Paper Co. ....	257,000	300,000	330,000	360,000	375,000	378,000
Great Western Paper Co. ....	20,000	.....	.....	.....	.....	.....
Publishers Paper Co. ....	9,000	56,000	75,000	70,000	80,000	85,000
Hennepin Paper Co. ....	12,000	.....	.....	.....	.....	.....
High Falls Pulp & Paper ....	8,000	.....	.....	.....	.....	.....
Inland Empire Paper Co. ....	29,000	.....	17,000	20,000	20,000	22,000
International Paper Co. ....	323,000	.....	.....	.....	.....	.....
Blandin Paper Co. ....	22,000	.....	.....	.....	.....	.....
Maine Seaboard Paper Co. ....	104,000	.....	.....	.....	.....	.....
Manistique Pulp & Paper ....	20,000	.....	.....	15,000	.....	.....
Michigan Paper (Plainwell) ....	.....	.....	15,000	.....	.....	.....
Minn. & Ontario Paper Co. ....	76,000	.....	.....	.....	.....	.....
Nekoosa-Edwards Paper ....	10,000	.....	.....	.....	.....	.....
Northwest Paper Co. ....	14,000	.....	.....	.....	.....	.....
Oswegatchie Paper Co. ....	16,000	.....	.....	.....	.....	.....
Oswego Falls Corp. ....	11,000	.....	.....	.....	.....	.....
Pacific Paperboard Co. ....	.....	7,000	.....	.....	.....	.....
Peavay Paper Mills ....	.....	9,000	.....	.....	.....	.....
Pepescot Paper Co. ....	41,000	.....	29,000	30,000	35,000	35,000
St. Croix Paper Co. ....	55,000	75,000	89,000	89,000	90,000	92,000
St. George Paper Co. ....	10,000	.....	.....	.....	.....	.....
St. Lawrence Paper Corp. ....	.....	.....	.....	30,000*	25,000	.....
St. Regis Paper Co. ....	115,000	.....	.....	.....	.....	.....
Sheffield Paper Mills ....	.....	10,000	.....	.....	.....	.....
Sherman Paper Co. ....	16,000	.....	.....	.....	.....	.....
Southland Paper Mills ....	.....	55,000	97,000	127,000	135,000	137,000
Tidewater Paper Mills ....	32,000	.....	.....	.....	.....	.....
Watab Paper Co. ....	17,000	.....	.....	.....	.....	.....
Waterway Paper Prod. Co. ....	14,000	.....	.....	.....	.....	.....
West End Paper Co. ....	13,000	.....	.....	.....	.....	.....
West Tacoma Newsprint Co. ....	25,000	.....	17,000	23,000	25,000	50,000
Wisconsin River Paper & Pulp ....	1,739,000	820,000	899,000	1,042,000	1,150,000	1,179,000

\* Former St. Regis mill at Norfolk, N. Y.

The new Masonite mill in Ukiah, Calif., completed a full year's operation.

Longview Fibre started up a new machine at Longview in 1952.

A Colorado mill project was abandoned, and west Montana, southern Idaho, Olympic Peninsula, Raymond, Wash., and Juneau, Alaska, mill potential sites were just in the talking stage.

But pulp hardboard and softboard mills were built or being built at Forest Grove,

Pilot Rock and Dee, Ore., at Anacortes, Wash.

#### Middle West

There was considerable activity in the middle west:

Nekoosa Edwards started up its new kraft paper machine at Nekoosa, Wis., in Dec. 1952, its ninth and biggest machine.

American Box Board at Filer City,

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Mich., in mid-1953 planned to start up the first Fourdrinier made for 9 pt. in many years, doubling its semi-chem output.

Rhinelander Paper added 50 tons in a new semi-chemical mill for glassine in the spring of 1953. Its No. 8 machine, third new machine in 10 years, completed its first year of operation.

Thilmany Pulp & Paper, Kaukauna, Wis., started up a new glassine machine in early 1953, taking place of two smaller ones.

Kimberly-Clark, Mead, Champion and Consolidated had brought in new book machines in various mills since the war, all in, but speedups and improvement continued.

Hoberg Paper Mills in 1952 started up a new tissue machine and Northern Mills, also in Green Bay, added two machines in just two years, while Fort Howard Paper Mills also started up a new one on tissue.

Detroit Sulphite Pulp & Paper Co. added in 1952 its second new machine in two years.

Hopper Paper Co. started up a new Fourdrinier machine in 1952.

Mosinee Paper Mills in Wisconsin completed a \$5,000,000 expansion and increased production on three machines in 1953.

National Container at Tomahawk added semi-chemical pulp production.

Cornell Wood Products also entered the semi-chemical field with added capacity.

Lee Paper Co., Vicksburg Mich., has completed its first year of operation of a new Fourdrinier machine.

Paper Corp. of America at Sheboygan, Mich., was converting to newsprint and planning expansion.

Michigan Paper Co. of Plainwell (Mich.) expanded by 11,000 tons yearly its newsprint output.

#### Northeast Mill Plans

Here was the story in the Eastern sector of the country:

Great Northern Paper Co. at East Millinocket, Me., projected two newsprint machines, adding 325 tons per day each. The first is under construction, will start up in late 1954.

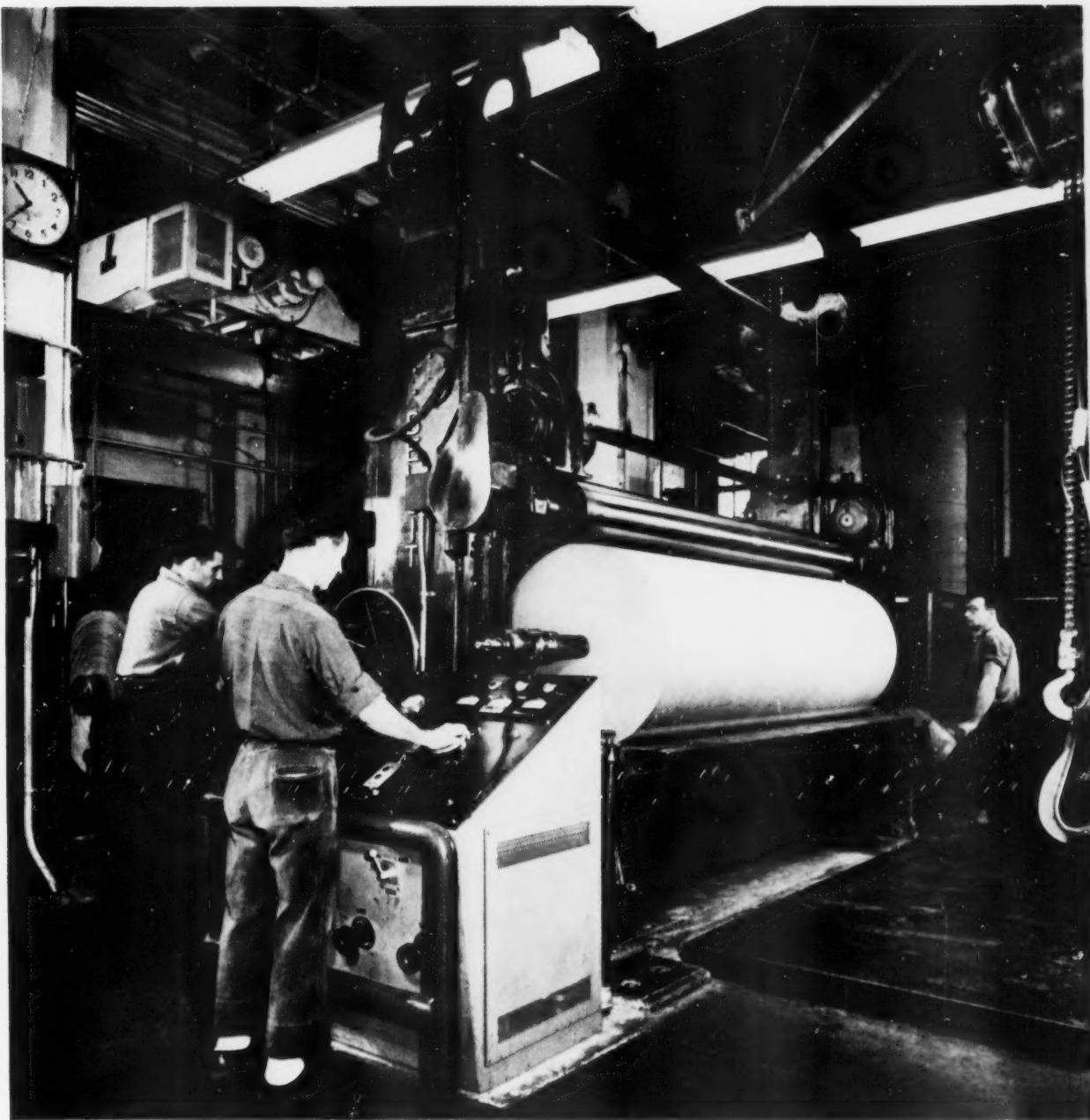
West Virginia added a semi-chemical mill for quality papers in Mechanicville, N.Y., starting up at 85 tons a day in late 1952.

Hammermill Paper Co. at Erie, Pa., spent \$1,600,000 to convert sulfite to neutral sulfite semi-chemical from hardwoods in 1952.

Groveton Papers Co., Groveton, N.H., completed in 1952 a semi-chemical and other additions which added 150 tons daily.

Warrensburg (N.Y.) Pulp & Paper, headed by Isadore Baum, broached the plan for a 100,000 tons per year newsprint mill as a cooperative with publishers. Former tissue mill has been making 1,000 tons monthly of newsprint, which meant more tonnage.

National Gypsum, in Buffalo, N.Y., on April 28, 1953, announced a further \$18,000,000 plant expansion program without detailing where, except saying it would include new sites. Its mills are in various parts of the country.



Cornell Paperboard Products Co., Milwaukee, Wis.



**GOOD SHIPPING ROLLS** of paperboard, tightly started and uniformly hard, are made by Beloit High-Speed Winders because: 1) the Beloit paper run permits tightness control by individually driven winder drums, 2) weighting by heavy driven rider roll is operator controlled, 3) the Beloit water-cooled unwind-stand air brake permits full control of sheet tension, and 4) the shear slitters cut cleanly.—*Beloit Iron Works, Beloit, Wis.*

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Through its subsidiaries (Kraft Containers Ltd., Hamilton, Ont. and Shipping Containers Ltd., Montreal, P.Q.) it supplies kraft corrugated shipping cases in a wide variety of types and styles to manufacturers and shippers from coast to coast.

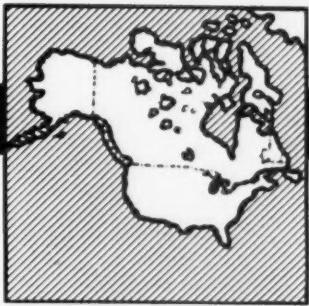
The company's mill at Bathurst, N.B. produces kraft liner and B.C.M. corrugating board for the shipping case industry in general—folding and set-up box-board for the paperboard carton industry—and unbleached sulphite pulp for manufacturers of paper and paperboard.

In the packaging industry there are thousands of uses for Bathurst products. Remember—whenever you see a kraft shipping case or a paperboard carton—there's a good chance it had its origin in the timber limits of Bathurst!

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51-1-S



## NORTH AMERICA

### CANADA Big Growth in Pulp

(Canada's 14,000,000 people use an average of 250 lbs. of paper per person per year.)

THE PAST YEAR was a sobering one for the industry in Canada. While newsprint continued in good demand, the pulp market lost much buoyancy; overseas competition was stronger and prices lower. Taking its cue from the evidence of temporarily curtailed requirements, the Canadian expansion program in progress since the termination of World War II lost some of its zip. Many of the mills continued their plans for modernization and integration, but there were few new large-scale developments.

Some financial groups which had contemplated an early start on new enterprises decided to take "a second look."

Yet the industry experienced a high level of overall demand for its products in 1952, and output of the mills declined by only 3½ percent from the all-time record established the year previous; it exceeded the figure for 1950 by 6 percent.

Pulp production in Canada last year was 60 percent greater than in 1945 and this fact in itself tells the story of the industry's expansion, which obviously could not maintain a boom momentum indefinitely. The export markets, particularly for pulp, were sharply down from unusually high levels of 1951.

Costs of production continued to rise, but economically the industry was possibly hit hardest by a combination of higher tax rates and the adverse effect of the appreciation of the Canadian dollar.

While construction of new mills in Canada was not so active as in other recent years, the industry spent about \$200,000 on plant, and \$70,000,000 for maintenance. These expenditures, indeed, were the highest ever achieved.

There was an explanation for the decline in exports of pulp in the inventory corrections among consumers in the U.S. who account for about 80 percent of the Canadian pulp exports normally. Newsprint production maintained its pace and more of it was shipped overseas. "The newsprint industry," reported R. M. Fowler, president of the Newsprint Association of Canada and the Canadian Pulp & Paper Association, "can, and will continue to expand to meet assured demands for its product in the future."

Pulp production climbed 60 percent be-

### Canada Spends Record Sum on Improvements; Woodpulp Output Is 60 Percent Above 1945

tween 1945 and 1952, while all Canadian industrial production advanced less than 25 percent in volume. In 1945, exports of pulp and paper from Canada accounted for about 10 percent of all Canada's exports; in 1952 they represented 22 percent of the total.

In 1952, Canadian newsprint production of almost 5,700,000 tons was 54 percent of all newsprint produced throughout the world. Canada consumed only about 6 percent of that and about 8 percent went overseas; the balance, more than 4,800,000 tons, was marketed in the U.S.A., or about four-fifths of its supply.

During recent months there were some improvements on the financial front as a result of a 11 percent reduction in average income rates in Canada and improved credits on dividends, and the Canadian dollar lost some of its strength, thus reducing the exchange disadvantage. The sales tax of 10 percent on newsprint sales to Canadian publishers was dropped and most mills increased prices by \$10 a ton to Canadian publishers, bringing base price to about \$122 in Canada.

As a result of machine speed-ups and improvements and the addition of Elk Falls Co., overall capacity of newsprint in Canada increased nearly 200,000 tons last year. Major contributors were Elk Falls,

of course, with more than 62,000 tons; Powell River Co., with 31,000 tons; Richmond Pulp & Paper Co., 38,000 tons; Canadian International, 14,700 tons; Abitibi, 12,200 tons and Price Bros., 10,000 tons.

A summary of the situation was given by Harold S. Foley, president of Powell River Co., when he said: "The pulp market is not stable and is exceedingly difficult to predict, but we hope to operate at about 75 percent of capacity (at Powell River). After several years of world scarcity, newsprint is now in balance as to supply and demand, with inventories generally throughout this continent at a high level. . . . In general, there are indications on every side that we have entered a period of re-adjustment, and this year will be a challenging one."

D. W. Ambridge, president of Abitibi Power & Paper Co., said: "It seems likely that there will be a period of uncertain length when it will be impossible to use this continent's greatly increased pulp producing capacity 100 percent of the time. If, however, world trade can be increased by suitable financial arrangements this period will not be long."

Technological advances are reviewed by Dr. Lincoln Thiesmeyer, president of the Pulp & Paper Research Institute of Canada: "Recovery of chemicals from

#### PRELIMINARY FIGURES FOR 1952 ON CANADIAN PRODUCTION

	Production		Exports	
	1952	1951	1952	1951
Gross value of output .....	\$1.2 billion	\$1.2 billion	\$914 million	\$939 million
	Tons	Tons	Tons	Tons
Total woodpulp* .....	8,800,000	9,122,229	1,898,000	2,260,834
Bleached sulfite pulp .....	773,000	843,802	559,000	609,580
Unbl'd. sulfite pulp .....	1,594,000	1,689,679	428,000	565,120
Bleached sulfate pulp .....	561,000	557,191	483,000	487,987
Unbl'd. sulfate pulp .....	548,000	655,823	140,000	226,880
Other chemical pulp .....	105,000	117,953	29,000	32,892
Groundwood pulp .....	5,102,000	5,125,043	249,000	322,457
Newsprint .....	5,687,051	5,516,279	5,297,681	5,143,616
Containerboard .....	342,000	372,548	27,000	37,912
Boxboard .....	342,000	384,531	39,000	48,913
Total paperboard .....	684,000	757,079	66,000	86,825
Fine paper .....	177,000	203,170	14,000	11,184
Coated paper .....	19,000	25,613	1,200	2,390
Other printing paper .....	57,000	45,547	31,000	18,846
Specialty papers .....	86,000	97,303	4,000	5,743
Wrapping paper .....	224,000	252,836	12,000	13,207
Bld'g. papers & boards .....	186,000	210,926	5,800	6,913

There are some slight duplications in the foregoing figures. Some paperboard and wrapping paper is used by the mills for packaging. Coated paper covers a tonnage that undergoes a further processing after it leaves the paper machine and thus is also included under other grades.

\* Includes screenings but excludes defibrated and exploded pulp.

Source: Canadian Pulp and Paper Association.

kraft pulping has been placed on a continuous instead of a cumbersome batch basis; solids from the liquors can now be used as fuel to power a good deal of the process. Techniques for bleaching kraft pulp to satisfactory degrees of whiteness so that it is an acceptable substitute for sulfite in many cases have been worked out. . . . Use of some waste liquors from the alkaline process in production of plastics and vanillin and development of dissolving pulps from hardwoods through pre-hydrolysis and kraft cooking are recent advantages from research that are already having far-reaching effects on forest utilization."

Dr. Thiesmeyer made reference to the new Va-purge process when he said: "The key to successful cooking of mixed species in all chemical processes is complete penetration of all the units in the digester charge to insure more uniform digestion. This has been found in a pretreatment technique which is now being applied at the mill scale in several types of chemical pulp production (notably at Pacific Mills' Ocean Falls mill and Price Bros.' Riverbend mill). Its successful introduction at many mills will have most salutary effects on forest conservation, both by increasing the yield of acceptable fiber from any one species and by permitting better chemical pulping of mixed species.

"Primarily through improvements in the methods and equipment for refining, some mills are now getting yields of 65 percent and better from sulfite-cooked softwoods. Within the past two years similar yields have been produced commercially in Canada from hardwoods cooked with dilute alkaline solutions. Similarly, the semi-chemical neutral sulfite cooking of hardwoods has produced yields of 75 percent of unbleached pulp and of 56 percent in bleached pulp of prime strength from hardwoods."

Powell River Co., which now averages more than 1,000 tons of newsprint at its British Columbia mill, thereby holding an industry record (1,156.9 tons in one banner day), has spent about \$47,000,000 in plant expansion since 1945. Primary objective has been to speed up the newsprint machines since starting No. 8 three years ago. Some major developments at Powell River during the past year: Thirteen mile transmission line from Stillwater; new steam turbine with potential of 12,500 KW and steam plant expansion; new barker mill with Hansel hydraulic barker; two new Waterous magazine grinders, largest in the world; a new deepsea wharf and storage.

Powell River Co. has been looking into possibilities of building another newsprint mill at Kitimat, where there will be surplus power from the Aluminum Co. of Canada's hydro and smelting project. A subsidiary, Hecate Development, has been formed in partnership with Alcan and application made for a forest management license. A start on this enterprise is expected within a year.

Much interest centers in the program of the Celanese Corp. of America subsidiaries in British Columbia—Columbia Cellulose Co. which operates a 300 ton high alpha pulp mill at Watson Island,

#### CANADA PULP MADE FOR SALE

Kinds of Pulp	Quantity		Selling Value at Mill		Average Value	
	1950 Tons	1951	1950 \$	1951 \$	1950 \$	1951 \$
Groundwood Pulp	344,522	429,175	18,727,938	32,187,351	54.36	75.00
Bleached sulfite						
Dissolving	335,736	408,969	52,891,624	81,904,028	157.54	202.71
Paper Pulp	351,176	357,299	40,971,057	53,741,668	116.67	150.41
Unbleached sulfite						
Strong	234,266	345,714	22,787,464	53,008,015	97.27	153.33
News grade	257,443	315,065	25,218,896	44,148,682	97.96	140.13
Sulfate						
Bleached	419,666	502,419	56,085,181	94,454,211	133.64	188.00
Semi-bleached	2,936	61	420,591	9,508	143.25	155.87
Unbleached	223,052	276,469	21,002,402	46,365,419	94.16	167.74
Screenings, Chem.	30,814	37,613	719,533	1,312,359	23.75	20.84
Screenings, Mech.	9,044	10,587	115,353	220,881	12.75	20.84
All other pulps	42,919	43,903	4,979,908	6,479,124	116.03	147.58
TOTAL	2,251,574	2,727,274	243,919,947	413,831,246	108.33	151.74

near Prince Rupert, and Celgar Development Ltd., which is carrying out preliminary work in connection with a \$65,000,000 integrated wood-utilization development in southeastern British Columbia.

Major units being installed at the Watson Island mill: A. O. Smith stainless steel-lined sulfite digester; Jonsson knotter, Sherbrooke red liquor washer, unbleached pulp decker, bleach plant washer, pulp decker and tower, and Flakt dryer with Fourdrinier wet end from Paper Machinery Ltd.

Details in connection with the Celgar enterprise have yet to be worked out, but extensive timber surveys have been made under Axel Brandstrom and Charles B. Dunham. Sulfate pulp and newsprint mill, together with sawmill and hardboard plant are contemplated, construction at Castlegar, to start in 1954.

Alaska Pine & Cellulose Ltd., which represents a British Columbia partnership of Alaska Pine Co. and Abitibi Power & Paper Co., has spent several million dollars on improvements at its bleached sulfite mills at Woodfibre and Port Alice during the past two years. Installations include Combustion Engineering steam boiler which doubles capacity; 33 Sherbrooke flat screens, with Dunbar drives and four Sherbrooke deckers, with Stebbins tile-lined vats. The new woodroom at Port Alice contains equipment supplied primarily by Sumner Iron Works, including Bellingham type hydraulic barker.

Elk Falls Co.'s newsprint mill at Duncan Bay, Vancouver Island, first plant of its kind built in Canada in 15 years, has been operating satisfactorily since completion in the summer of 1952, and has been producing at the rate of about 250 tons a day. The mill has been designed for 320 tons. A vacuum transfer has been ordered for the 284 in. Dominion Engineering paper machine.

The owners of Elk Falls Co., Pacific Mills and Canadian Western Lumber Co., have ambitious plans for the Duncan Bay mill and it is probable a fully integrated mill producing several kinds of pulp will operate there. Future plans, however, de-

pend on the program of Canadian Western share acquisition by Crown Zellerbach Corp., which is also the parent of Pacific Mills.

Westminster Paper Co. has installed a new Beloit 135 in. Fourdrinier machine at its specialty paper mill at New Westminster. This company plans to expand its pulp production facilities and has made application for a forest management license in the Prince George area with a view to building a mill there, using pulpwood from the Cariboo district. This project may be finalized before the end of this year. Westminster Paper Co. has also made an investment in Auckland Paper Mills, which would operate as a New Zealand subsidiary.

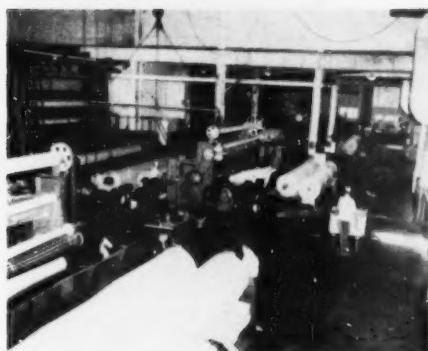
Quebec still stands first among the provinces in volume of production; last year it produced about 46 percent of all Canada's pulp and 52 percent of Canada's newsprint. Howard Smith Paper Mills is Canada's biggest fine paper producer, and while its current expansion has affected some of its mills in Ontario, it plans an \$8,500,000 (40,000 ton) sulfate pulp mill at Crabtree Mills, Que. This project has been held in abeyance temporarily. It has doubled production at its Arborite Co. subsidiary at Ville La Salle. Consolidated Paper Corp. has spent millions on modernization of its Quebec mills.

St. Lawrence Corp. has a big program under way at East Angus which will cost \$7,000,000 and be completed next year, involving modernization of woodyard and unbleached sulfate pulp mill, installation of an 8,400 ton semi-chemical pulp mill to utilize hardwoods.

Price Bros. & Co. has been building new hydro-electric power plants on the Shipshaw River and the main plant at Chute des Georges will have a capacity of 9,000 h.p. Both will be ready for operation this year. Six additional Curlators have been installed at the company's Riverbend mill to enable the company to convert high yield sulfite to suitable furnish for newsprint.

James MacLaren Co. was getting pro-  
Continued on page 178

# BOWATER'S OF CANADA



**Interior of one of the world's largest single integrated pulp and paper mills. Output is largely exported to the United States.**

Many hundreds of newspapers published in the United States are supplied with paper by the Bowater's Newfoundland Pulp and Paper Mills Limited, a great Canadian company whose pride is in service to all the nations of the western world, particularly the United States.

The production of pulp and paper—converting the annual yield of Canada's forests into paper which so vitally serves commerce and the cause of freedom—is Canada's largest manufacturing industry. Bowater's Newfoundland Pulp and Paper Mills Limited is an important unit in that industry.

Over-all production at the company's mills at Corner Brook, Newfoundland,

amounted to 346,600 tons—an increase of 106,000 tons since pre-war—and current improvements will soon further enlarge output.

Last year the company sold 305,342 tons of newsprint to buyers outside Canada. Most of this went to supply the tremendous demand in the United States. As Bowater's largest customer, the United States will again have priority, during 1953.



**Pulpwood arrives at Corner Brook**

*The diversity of Bowater's woods operations necessitates many methods of transportation for the pulpwood produced. Pictured above is one of these methods. Barges such as this, loaded with 2,000 cords of wood, and towed by ocean going tugs, bring wood to the mill from points up to 345 miles from Corner Brook.*

## Bowaters

*An international organization making paper, board and packaging materials that answer the needs of industry and trade throughout the world.*

Issued by Bowater's Newfoundland Pulp & Paper Mills Limited, Corner Brook, Province of Newfoundland.



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"\$17,000 in steam cost saving per year"

"10% increase in production"

"Improved product quality"



The report of one paper board manufacturer  
(name and case history on request), on two years'  
operation with a Cochran C-B System.

### "JET" Handling of Condensate did the trick

This large well-known plant, operating a 7-cylinder 81 drier machine, installed a Cochran C-B Unit to drain the condensate header directly into the boiler. Result: Drier roll surface temperatures evened-out; consistently higher surface temperatures from wet to dry end obtained with machine under full condensing load; dramatic production increase, quality improvement and steam cost saving made possible.

The Cochran "JET" Unit steps-up production by removing "insulating" layers of condensate, gases and air from driers continuously and efficiently, providing more uniform, intense heat transfer. Quality is improved because heat fluctuations are leveled-out, drying time reduced and cold spots eliminated.

In the C-B system, no water or heat is lost through flashing, and condensate is returned to the boiler or make-up system without appreciable pressure or temperature drop, resulting in average steam cost savings of 10% or more.

Over 1700 industrial installations attest to the efficiency of the C-B. It can produce these same results for you. Ask for Publication 3250 on the Cochran C-B Condensate Booster System of Condensate Drainage Control. We'll gladly prove its effectiveness to you.

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## **RESTIGOUCHE** **BLEACHED SULPHITE PULP**

*for the manufacture of  
Cellophane, Rayon and  
Products of Paper.*



**RESTIGOUCHE COMPANY, LTD.**  
**Campbellton, N.B., Canada**



## A New Industry Comes to America

In the late 1860's, with newer, better, faster machines, and with plentiful wood pulp in prospect to feed them, the paper industry boomed. Still the essential papermakers' felts were largely imported from England. Pioneers set about to supply the urgent need—American-made felts for America's multiplying paper mills.

Among the first of the American feltweaving mills was one now known as F. C. Huyck & Sons. Established in 1870 in the village of Rensselaerville, New York, it has grown to be one of the largest manufacturers of papermakers' felts in the world. It has cooperated closely with the papermakers, designing and producing felts to run at greater speeds, remove water in greater volume, provide new finishes for new types of paper.

**HUYCK FELTS**



F. C. HUYCK & SONS • ESTABLISHED 1870 • RENSSELAER, NEW YORK

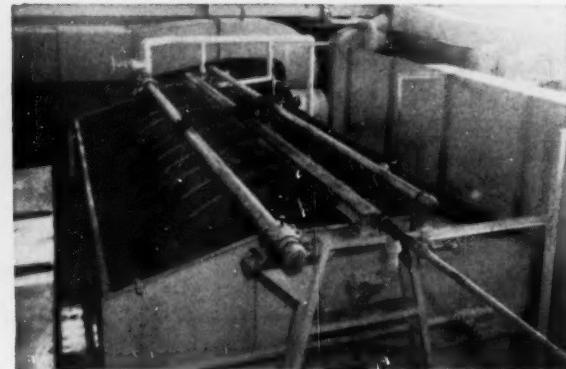
1953 Review Number

PULP & PAPER

71

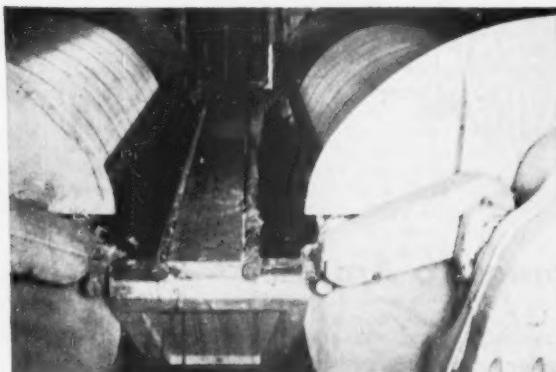
# OLIVER

## Widest Type Selectivity\* Assures the Best for

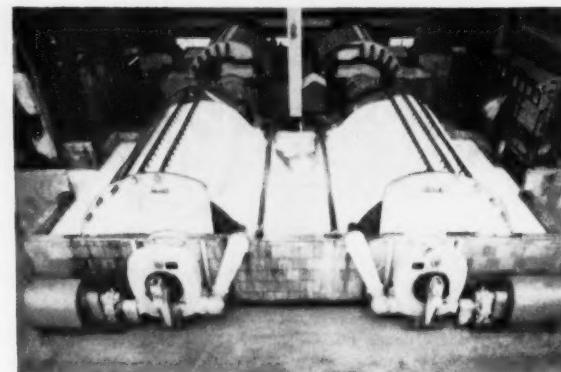


\* At Oliver United, for example, you are not confined to any one type Saveall. We can offer either the Oliver Drum Type or the American Disc Type Saveall,

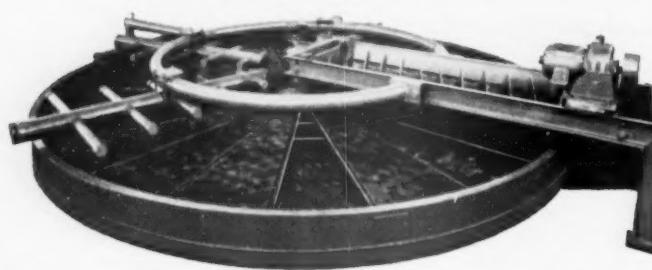
each of which has its outstanding advantages depending on your individual requirements.



\* Or take pulp washers. You have a choice of the pipe type drum filter known as the Oliver Pulp Washer or the washer with the centrally located "ring valve," known as the Oliver Ringvalve Washer. And we also have the Oliver Horizontal Filter which has

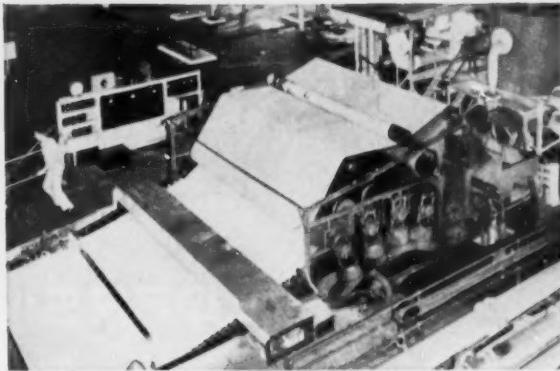
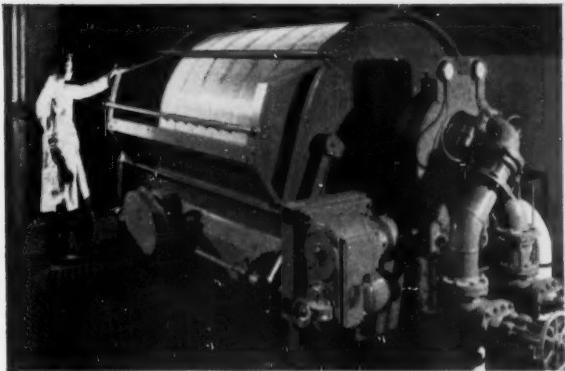


the great advantage of multiple countercurrent washing on one unit. This is a new development which reduces dilution and improves washing especially when handling extremely free fiber difficult to handle on a drum type washer.



# UNITED

## Your Pulp Filtration and Washing Requirements



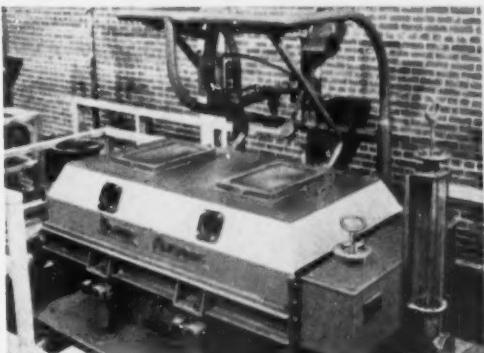
\* Our Lime Mud Filter is an adaptation of the widely used Oliver Chemical Filter. Handling lime mud is not a pulp-handling problem. It's solely chemical in all its aspects. It's not a sheet that is discharged from the filter but a thick cake, which removes practically all of the fine solids from the filtrate recirculated to the causticizing system, and thus improves thickener operation.

\* The Oliver Board Forming Machine is especially designed to form the strongest, most uniform, board of the desired weight from a wide variety of pulps.

Thirty (30) such units have and are giving satisfied users the best possible performance and production.

Oliver Forming Machines are geared to operate up to 60' per minute, thus providing for potential capacity of over 1,000,000 square feet of  $\frac{1}{2}$ " board per day. Oliver maintenance costs are lower.

Back of this array of Olivers for the Pulp and Paper Industry is the experience gained since the early 20's when Oliver pioneered and developed the use of vacuum filters in this industry.



We are continuing pioneering and development in the pulp and paper industry because we appreciate the great future for this industry.

In this connection we now have the Oliver-Ahlfors Upflow Pulp Screen. A really excellent efficient new type screen. Write for Bulletin No. 750.

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## EUROPE

**Many Mills Add U.S.A.-Built Machines and Equipment; European Industries Recover from Bad Slump in 1952**

### SWEDEN

#### No. 1 in World Market

(Sweden's 7,100,000 people use an average of 101 lbs. of paper per person per year).

EXCEPT FOR BLEACHED KRAFT, Sweden's pulp production declined in all grades in 1952 as compared with 1951. Its exports in all grades declined but there were notable exceptions in the exports to the U.S.A.—they doubled in groundwood and they held their own in bleached kraft. The story is told in accompanying tables, which tell a similar story concerning Swedish paper, except for newsprint.

These WORLD REVIEW NUMBER statistics on Sweden have a high interest in many countries, for Sweden is preeminent in all the world outside of North America as a producer.

As for exports of woodpulp, Sweden's shipments of only some 215,000 tons to the United States in 1952 was a record low figure for modern times, certainly a far cry from the pre-war years when several times that amount was shipped.

But in the rest of the world, Sweden marketed 1,794,000 tons. The total of more than 2,009,000 tons sold in world markets keeps Sweden in No. 1 position as an exporter of woodpulp. Canada is close with 1,930,000 tons exported in 1952, and with U.S.'s 255,000 tons, North America is a far more important factor than in past years.

But what is the 1953 outlook for Sweden and her customers? That question was intriguing the pulp and paper world everywhere, because Sweden has an influence in virtually every market.

Early this year, before the ice breakup, Sweden's stocks were estimated at about 335,000 tons of woodpulp, presumably chemical pulp, because groundwood stocks were practically exhausted. They were large but not of a "disturbing magnitude," said a Swedish publication, and some Swedish observers held that U.S. shipments would not be as large as in immediate postwar years, but might rise to from 300,000 to 400,000 tons. However, there were others who considered even this predicted figure too high.

There were meetings held of Swedish,

#### LARGEST KRAFT MACHINE IN SWEDEN

THIS MACHINE AT GRUVON MILL of Billeruds Co. in Sweden is over 330 ft. long and trims 17 ft. 3 in. It was built by Karlstad Works in Sweden and makes kraft bag paper at rate of 30,000 tons per year.

#### SWEDEN'S WOODPULP EXPORTS TO ALL COUNTRIES AS COMPARED WITH EXPORTS TO THE UNITED STATES

(In Short Tons)

Years	Bleached Sulfite	Unbleached Sulfite	Bleached Sulfate	Unbleached Sulfate	Ground-wood
1938 (To All Countries) .....	304,078	571,077	92,793	575,508	297,420
1944 (To All Countries) .....	156,340	710,709	13,088	70,889	10,600
1945 (To All Countries) .....	262,146	49,787	43,273	536,114	314,054
1945 (To U. S.) .....	56,496	283,959	28,070	274,429	27,933
1947 (To All Countries) .....	445,607	530,569	136,701	462,120	223,852
1947 (To U. S.) .....	40,076	218,918	56,282	201,440	12,532
1949 (To All Countries) .....	578,965	530,448	197,380	496,287	284,350
1949 (To U. S.) .....	42,130	129,902	70,013	106,160	7,547
1950 (To All Countries) .....	632,082	609,404	250,326	501,324	312,224
1950 (To U. S.) .....	49,350	99,562	89,663	103,932	12,763
1951 (To All Countries) .....	601,114	526,089	267,847	455,863	326,661
1951 (To U. S.) .....	30,522	51,344	71,765	58,562	6,767
1952 (To All Countries) .....	490,747	406,386	248,861	352,272	296,231
1952 (To U. S.) .....	26,776	61,356	72,714	41,855	12,634

Source: Svenska Cellulosaforeningen, Stockholm.

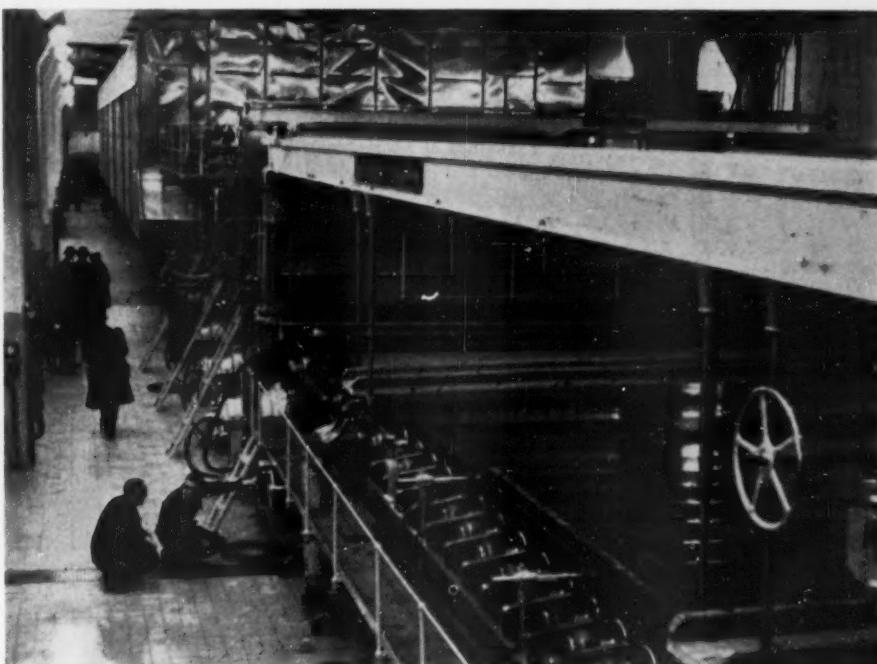
Norwegian and Finnish producers in attempts to come to an agreement on curtailing production this year, proportionately in each country. A proposal considered was 90 percent of 1951 production, which would be about 1952 figures, but last reports this spring were that they had not been able to come to agreement.

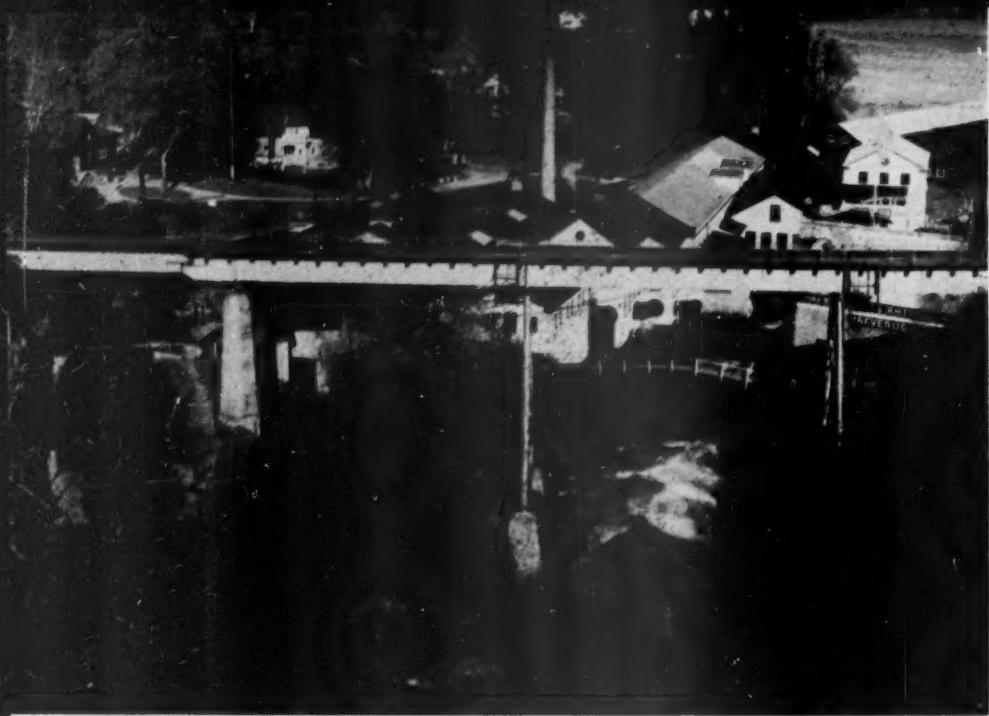
Significant was the unexpected early breakup of the ice in the Baltic, which gave Sweden an opportunity to work off some of its high inventory with a brisk

demand from Britain for early shipment. All through March, winds kept the ice off the Norrland coast and icebreakers did the rest.

Shipments of paper to foreign countries from Sweden was lower in the first months of 1953 than last year, but this was anticipated. This included newsprint, which had been in strong demand the previous year by overseas customers.

One important development for the Swedish pulp and paper mills was the





**HAFRESTRÖMS AKTIEBOLAG** Mill at Haverud, Sweden, is a manufacturer of machine coated paper using the patented process of Champion Paper & Fibre Co., Hamilton, O., U.S.A., under license. The canal at left in this picture is used to transport materials to and from the mill. Note how the canal passes over the mountain stream in the foreground, by way of a water-filled canal bridge. Hafstroms makes some 18,000 tons of paper and 15,000 sulfite pulp. It makes printing, writing, specialty, waxed and crepe papers.

settlement on new labor contracts in February which left their wage scales practically unchanged. Smaller mills were running sporadically in some cases.

Meanwhile the Swedish paper and paperboard industry is carrying out further

modernization and expansion.

The biggest kraft machine in Sweden, one of the largest in Europe, was started up in Dec. 1952 at the Gruvön, west Sweden mill of Billerud Co., largest producer of kraft papers in the country. Made by Karlstad Works, it trims 17 ft. 3 in., is 330 ft. long and 30 ft. high (equivalent in outer dimensions to a 7,000 ton ship, says an announcement!). It is making kraft bag paper at rate of 34,000 short tons a year, increasing mill capacity to 72,000 tons. This was the second machine added at this mill since 1944, bringing the total to four, and completing a modernization that included pulp mill additions.

Black-Clawson Co., Hamilton, O.,

U. S. A., is supplying a 100-ton-per-day paperboard machine for Fiskeby Fabriks Aktiebolag, at Norrköping, and also complete equipment for the entire process, including Shartle-Dilts stock preparation, built both at the Shartle Bros. division at Middletown, O., and B-C International Ltd., British subsidiary. Future potential capacity of this machine is 200 tons.

Presently a 3-stock system is going in, with 20 ft., 14 ft. and 12 ft. Hydrapulpers, Hydrafuge separators for cleaning, Shartle duo-cycling, two Hydrafiners, four 2A Miami jordans and other essentials. The machine will make boxboard, test liner,

**FOR THE FISKEBY MILL** at Norrköping, Sweden, the Black-Clawson Cos. of U.S.A. and Britain are building an entire process, including a 140-in. Paperboard Machine and the entire Stock Preparation plant with Hydrapulpers, Hydrafiners, etc. Top view—dryer section which will be double deck, showing dryers in position. Middle view—Main building of new Fiskeby mill under construction in early 1953. Lower view—Close-up of dryer section under construction.



newsboard and chip. The board machine will trim 140 in., with seven vats (48 in. molds), three of "uni-flo" design with B-C hydronamic inlets and four counter-flow. A primary press, a main press section, 39 double deck dryers of 60 in. with a lead-on 24 in. dryer, smoothing press between 2nd and 3rd section, Black-Clawson calenders and Pope type reel are included.

A new Jagenberg Duplex sheeter of high speed, 60 fpm., from Germany, is also a new Fiskeby addition at this mill.

Beloit Iron Works (U.S.A.) is rebuilding No. 4 machine extensively at the Lilla Edets Pappersbruks Aktiebolag. An air-cushioned inlet, new Fourdrinier, suction press, suction pressure roll, Yankee dryer

#### SWEDEN—Pulp Produced

(In Thousands of Short Tons)

Mech.	Sulfite Bleached	Sulfite Unbl.	Sulfate Bleached	Sulfate Unbl.	Total Chem.
1937 . . . . .	809	514	1,290	96	3,076
1946 . . . . .	747	556	802	132	2,267
1949 . . . . .	700	671	757	223	2,479
1950 . . . . .	794	735	831	272	2,712
1951 . . . . .	800	772	858	319	2,853
1952 . . . . .	715	698	774	327	2,592

Source: Svenska Cellulosaforeningen, Stockholm

#### SWEDEN—Paper Produced

(In Thousands of Short Tons)

News	Kraft	Fine	Board	Total (Includes all other grades)
1937 . . . . .	312	247	97	149
1946 . . . . .	299	269	141	149
1949 . . . . .	345	302	110	164
1950 . . . . .	358	320	111	209
1951 . . . . .	365	369	133	230
1952 . . . . .	364	306	122	157

Source: Svenska Pappersbrukföreningen, Stockholm

#### SWEDEN—Paper Exports

(In Thousands of Short Tons)

News	Kraft	Sulfite Wrapp'g	Greasepr'f Parchm't	Board	Total (Includes all other grades)
1937 . . . . .	218	208	127	28	77
1946 . . . . .	133	156	62	19	77
1949 . . . . .	221	201	68	25	39
1950 . . . . .	224	273	79	30	57
1951 . . . . .	218	277	85	29	44
1952 . . . . .	229	206	47	21	38

Source: Svenska Pappersbrukföreningen, Stockholm

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and Maintaining your  
corrosion-resistant  
Tile Tanks and Linings

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We accept the responsibility; long experience and ample resources permit us to do so.

One typical result: 80% of all chemical pulp made in North America is processed at some stage in equipment built or lined by Stebbins.



**STEBBINS**

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STEBBINS ENGINEERING CORP. — TEXTILE TOWER, SEATTLE, WASH.

CANADIAN STEBBINS ENGR. & MFG. CO., LTD. — CASTLE BLDG., MONTREAL, CANADA

SINCE 1884

Specialists in Design, Installation and Servicing of Linings and Tile Tanks



## EUROPE

and double drum winder are being supplied. Beloit also built winders for two of other Lilla Edets machines.

In June a molded corrugated vacuum former was to begin production of solid fluted corrugated board at Munksjo Aktiebolag at Jonkoping. The Sandy Hill Iron & Brass Works (U.S.A.) built and shipped the machine.

## FINLAND Expansion Continues

(Finland's 4,100,000 people use an average of 100 lbs. of paper per person).

THE FUTURE POTENTIAL of the Finnish pulp and paper industry is surveyed in the article which follows by PULP & PAPER's correspondent in that country, who is information chief for the forest industries. He also reviews the expansion that will result from International Bank credits and domestic financing.

The Finnish industry entered a new era with the end of Russian reparation payments in Sept. 1952. Still standing as a European record for production is the 124,000 tons made in 1951 by Oulu Oy, kraft mill in Oulu, Finland. A world record—what is said to be the world's biggest greaseproof-machine—a 217 in. German Voith—started up a Mänttä mill a year ago (see picture).

American machinery continues to go into new Finnish installations. In 1952, Bagley & Sewall began work on a 284 in. Fourdrinier machine for Yhtyneet Paperitehtaat Osakeyhtiö (United Paper Mills Ltd.) of Valkeakoski. Jagenberge-Werke, of Germany, is supplying two re-

AT LEFT—BELOIT IRON WORKS made this 205 in. Kraft Fourdrinier Machine for Kotka Mills of Enzo-Gutzeit Oy., the second machine it has built for that Finnish company. Potential speed is 2,000 fpm. and output 200 tons per 24 hrs. It started up Jan. 25, 1953. Beloit is building a third machine for this company.

winders for this mill. Previously, Bagley & Sewall made two board mills for Setova.

Downingtown Mfg. Co. is making a Fourdrinier machine for delivery by 1954 to Valnetefor Vietsiluoto Oy. It is described as similar to one built by Downingtown for Sonoco Products in the U.S.

The second Beloit machine for Enzo-Gutzeit mills, a 205 in. kraft Fourdrinier, for the Kotka mill, started up late in 1952 (see picture). This machine features air-cushioned inlet, removable Fourdrinier with dual unit high-speed shake, patented reverse press, Beloit air guides, two open-side calender stacks, high-speed two drum winder, and differential drive system for speeds up to 2000 fpm.

A third Beloit, second one for the same mill, was to roll later this summer. This is to be a 226 in. Beloit Fourdrinier for light kraft, with air-cushioned inlet, differential drive, and the Beloit vacuum transfer now in use in six mills in the U.S. Beloit built its first machine for this company's Kaukopaa mill in 1950.

In 1952, Beloit furnished suction rolls and other items to a number of Finnish mills. A complete hypoid gear unit mechanical drive system with short center V-belts was built for Kajaani Osakeyhtiö.

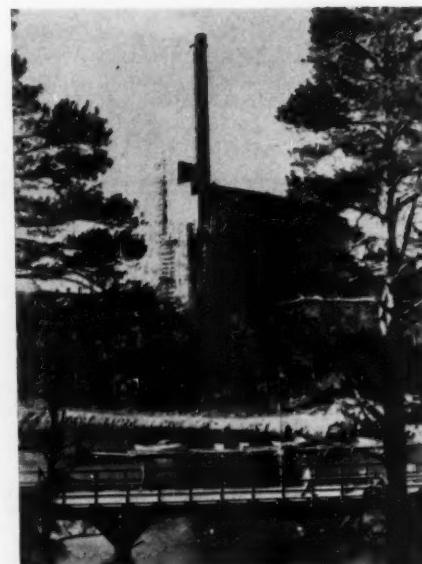
Sutherland Refiner, Sprout-Waldron and Pandia have been supplying Finnish mills, and one of the results of their work is that the first semi-chemical pulp ever offered in the market since the Green Bay, Wis., mill temporarily was selling a few years ago, has been shipped to the U.S. from Finland.

Here follow Mr. Valtasaari's comments:

### By Matti Valtasaari

#### Statistical and Information Chief, The Central Association of Finnish Woodworking Industries

The income obtained in 1952 from exports of cellulose, mechanical pulp, paper and board fell by 14.3 million dollars from that of the previous year. This was a decisive part of the total 20 percent



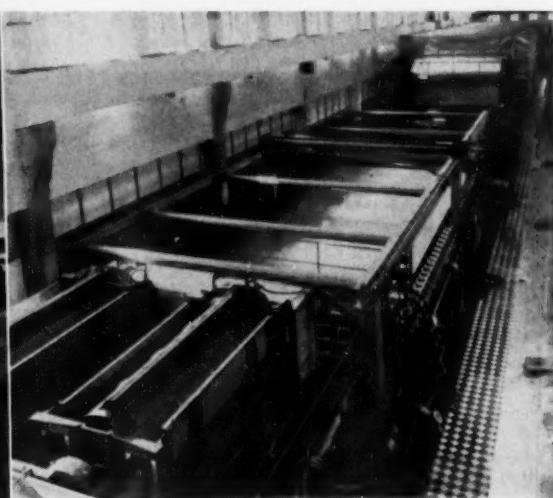
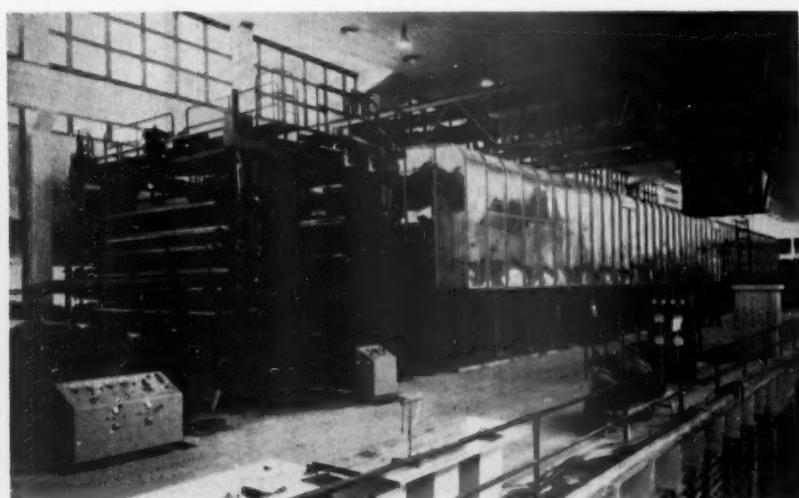
NEW DIGESTER BUILDING was just shedding its scaffolding at SUNILA OY.'s Kraft Pulp Mill when this picture was taken. Digesters, diffusers and soda units are being installed this year to complete a 50 percent increase in production to 130,000 tons per year. Considerable additional machinery was installed during 1952.

drop in export returns which Finland experienced between 1951 and 1952. The bulk of the country's exports consists of forest industry products.

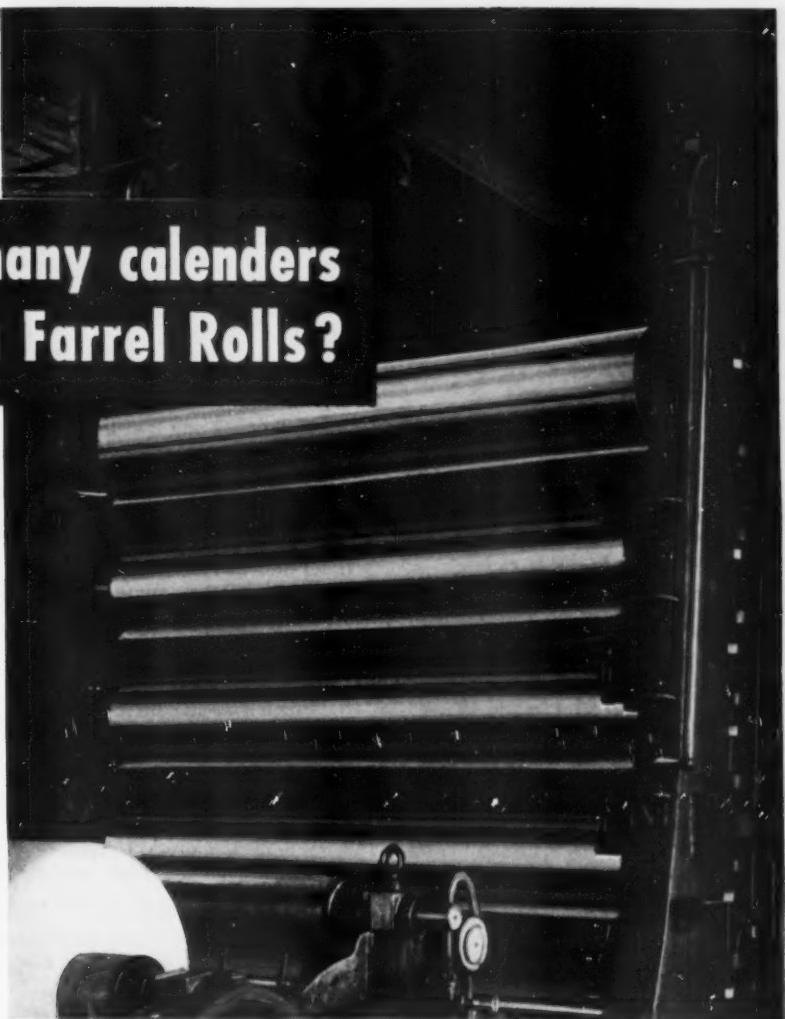
While the cellulose mills of the country in 1951 operated at 96-97 percent of capacity, in 1952 just over 80 percent capacity for sulfite and 70 percent for sulfate was utilized. This resulted in a cut in production of 16.5 percent. The greatest buyers of Finnish cellulose in 1952 were Britain with 317,000 short tons (in 1951, 466,000); the U.S. with 139,000 tons (163,000 in 1951); France with 74,000 tons (115,000 in 1951), and Western Germany 43,000 tons (70,000 in 1951). Because of the radical price drops the value of cellulose exports was only 59 percent of the previous years.

Reduction in the production of me-

AT RIGHT—SAID TO BE LARGEST GREASEPROOF MACHINE IN THE WORLD—this is new 217 in. Machine at Mänttä Mill of G. A. Serlachius Oy. of Finland. It is 328 ft. long. It was built by J. M. Voith at Heidenheim, West Germany, and is making up to 40 tons daily. It started up May 27, 1952. Output at Mänttä has been increased 40 percent.



## Why are so many calenders equipped with Farrel Rolls?



There are several reasons why so many mills specify Farrel rolls for their calenders. For example:

- 1. CORRECT METAL FORMULA** — Continuing metallurgical research and a century of roll-making experience guide Farrel engineers in determining the proper metal mixture for each application.
- 2. CORRECT DEPTH AND HARDNESS OF CHILL** — Surface hardness prolongs accuracy of the roll face, and, as a result, lengthens the time between regrindings. Correct depth of chill means that the roll may be reground many times before its usefulness is ended.

- 3. CORRECT CROWN** — The amount of crown is accurately figured to compensate for deflection. It is precisely graduated, exactly symmetrical on both halves of the roll.

These are a few of the reasons why you, too, should specify Farrel rolls — from the world's largest specialty roll shop. For further information, send for a copy of Bulletin No. 116. No cost or obligation.

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FB-797

**Farrel-Birmingham**

chanical pulp for export in 1952 compared with the year before was the same as in the other Northern Countries, i.e. 20 percent. Britain bought 79,000 short tons of Finnish mechanical pulp (in 1951, 132,000); France 20,000 tons (36,000 in 1951); the U.S., 19,000 tons (16,500 in 1951), and the Soviet Union 13,000 tons (—). The value of mechanical pulp exports was only 58 percent of the export value the year before.

The principal buyers of Finnish paper in 1952 were the U.S. with 165,000 short tons (in 1951, 165,000 tons), Britain with 91,000 tons (96,000 in 1951), Argentina 59,000 tons (77,000 in 1951); Denmark, 33,000 tons (43,000 in 1951); Brazil 34,000 tons (32,000 in 1951), and the Soviet Union 26,000 tons (900 in 1951). Exports of cardboard to Britain in 1952 remained at 15,000 tons against 57,000 tons in 1951. The exports of fiberboard to Great Britain dropped, similarly, from 16,500 to 3,300 short tons. The value of the exports of various paper qualities, cardboard and fiberboard remained at 80 percent of the previous year's export income.

The consumption of newsprint and other paper in Finland in 1952 totalled 96,000 short tons, of cardboard 18,000 tons and of fiberboard 50,000 tons.

The 1951 production figures with this report represent the utilization of full production capacity. They were attainable in many cases only by heavily overloading the mills. The 1937 capacity, on the other hand, was not fully utilized. Since then, 220,000 short tons of new cellulose capacity has been brought in.

MATTI VALTASAARI,  
Statistical and Information Chief, Finnish  
Woodworking Industries, who reviews pulp  
and paper potentials of his country.



Total pre-war capacity of the cellulose mills was about 1,875,000 short tons of chemical pulp and about 1,100,000 short tons of mechanical pulp.

The building program being realized with aid of U.S. dollar and Swedish crown credit granted by the International Bank for Reconstruction and Development, the related domestic bond loan and self-financing so characteristic of Finnish industry, applies to 15 forest industry enterprises. Its importance to Finnish exports is illustrated in this summary of its effect:

The export production of mechanical pulp, semi-chemical pulp and cellulose will increase by some 138,000 short tons. A large proportion of the increased production will have a higher degree of finish.

The projected increase in newsprint production is 220,000 short tons and in other paper and cardboard 132,000 short tons. These amounts imply a corresponding rise in export capacity.

The industrialization committee, in which representatives of industry and of government discussed the possibilities and order of priority of the industrialization of the country, calculates that, on the basis of the raw material resources, the cellulose industry had a possibility of increasing its production by 400,000 short tons.

The figure for mechanical pulp was 55,000 short tons and for semi-chemical and fiberboard, 55,000 short tons.

In the event of the industry being capable of increasing its primary production to this extent it would be possible to increase the bleaching of sulfite by 110,000 short tons, and to establish sulfate plants for a production of 220,000 short tons and to increase production of paper and board by 385,000 short tons.

## NORWAY Its Leading Export

(Norway's 3,300,000 people use an average of 127 lbs. of paper per person per year).

**NORWAY**, HARD HIT by World War II and the Nazi occupation and over-cutting of forests, has brought its mechanical pulp production back to pre-war levels and its chemical pulp production has been close to pre-war levels in the past couple of years—in kraft it has exceeded those levels. There has been more conversion to paper and board, with production ahead of pre-war.

But the highest levels of postwar years were in 1951 in both production and export of all of these classifications, except that sulfate pulp exports were slightly higher in 1952.

One of the most interesting points in this specially prepared report for the **WORLD REVIEW NUMBER**, is the statement that the annual increment of the Norwegian forests is about 470,000 cords, mostly, but not all accessible. This will look like a low figure in other larger countries:

### By Oyvind Nossen

Forest Industries' Economic Institute, Oslo.

Forests and rivers of Norway have for ages dominated its economic life. On a per capita basis, this is the leading country in the world in terms of electric power. This has been the basis for pulp and paper development.

Chemical pulp was first made in Norway about 70 years ago and it likewise has pioneered in new processes, such as ammonia base (see 1952 **WORLD REVIEW**, Norway). The country's rich resource in pyrites has been profitably utilized for chemical pulping, etc.

The forests of Norway now are estimated to total 350 million cu. meters of wood (1,370,000 cords), of which about 83 percent is coniferous, spruce constituting two-thirds of this. Of the broadleaf (hardwoods types), birch is most important.

Total increment in Norway forests is over 12 million cu. meters (about 470,000 cords), of which 10 to 10½ million cu.

### FINLAND—Paper Produced (In Thousands of Short Tons)

	News	Wrapping	Writing and Printing	Total Paper (Includes other grades)	Paperboard Cardboard Wallboard
1937	463	121	56	669	172
1949	425	107	62	623	173
1950	460	123	86	700	237
1951	458	141	122	756	355
1952	480	136	108	755	255

### FINLAND—Paper Exports (In Thousands of Short Tons)

	News	Wrapping	Writing and Printing	Total Paper (Includes other grades)	Paperboard Cardboard Wallboard
1937	422	101	45	572	133
1949	384	67	43	502	101
1950	417	75	59	557	153
1951	422	87	90	609	238
1952	433	85	78	604	143

### FINLAND—Pulp Produced (In Thousands of Short Tons)

	Mechanical	Sulfite	Sulfate	Total Chemical
1937	904	1,143	483	1,626
1949	659	690	429	1,119
1950	793	791	525	1,316
1951	889	905	623	1,528
1952	797	786	488	1,274

### FINLAND—Pulp Exports (In Thousands of Short Tons)

	Mechanical	Sulfite	Sulfate	Total Chemical
1937	321	908	392	1,300
1949	176	495	343	838
1950	195	566	403	969
1951	231	655	427	1,082
1952	158	525	271	796

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• Reichhold BECKAMINE P-682-35 is a *superior* wet strength resin for application to bleached and unbleached kraft or sulfite, ground wood, rag, or mixtures of these pulps. It increases dry tensile and Mullen strength . . . aids in the retention of clay, rosin size, starch, and other beater additives. A urea-formaldehyde resin of the cationic type, it can be diluted infinitely with water with no precipitation. BECKAMINE P-682-35 is usually applied after the refining operation at any convenient point, such as fan pump or headbox. If necessary, it can also be added at the beater. For complete information, please write for booklet 300.

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AIR VIEW OF ONE OF NORWAY'S LARGEST PRODUCERS of paperboard. This is A. S. Mesna Træsliperi og Kartonfabrik, located at Lillehammer, Norway. Note well filled log pond in foreground; workers' homes on the slope behind the mill.

were increased by 500 tons to 15,900. These were higher grades and the sulfite included 50 to 60 percent dissolving grades. Britain received 43 percent of exports; France, 12.3 percent; Netherlands, 10.6 percent; United States, 8 percent; Spain, 7.4, and West Germany, 6 percent.

The paper and board industries of Norway, with 51 mills, divided production in 1952, as follows: newsprint, 33.4 percent; fine paper, 12.8 percent; other paper, 44.3, and board, 9.5.

Total production was 515,000 short tons, compared with 564,000 in 1952, but board production remained stable at 49,000 tons.

#### NORWAY—Pulp Produced

(In Thousands of Short Tons)

	Mech.	Sulfite	Sulfate	Total
				Chem.
1937 . . . . .	599	527	82	609
1946 . . . . .	308	207	46	253
1950 . . . . .	590	449	84	533
1951 . . . . .	613	491	93	584
1952 . . . . .	569	454	92	546

#### NORWAY—Pulp Exports

(In Thousands of Short Tons)

	Sulfite	Sulfite	Total		
	Mech.	Bleached	Unbl.	Sulfate	Chem.
1937 . . . . .	322	298	56	16	370
1946 . . . . .	91	86	2.2	5.5	94
1949 . . . . .	289	202	0	9	211
1950 . . . . .	344	236	6	16	258
1951 . . . . .	369	238	0	15	253
1952 . . . . .	352	220	0	16	236

meters may be reckoned as utilizable. In general, it is estimated that growth now balances cutting.

Since war years, especially, pulpwood imports from Finland have been important. In 1950 this totaled 217,000 cu. meters, in 1951, 648,000 cu. meters, but in 1952 it was only 399,000 cu. meters (about 1,584 cords).

Groundwood is a major Norwegian product with 47 groundwood mills, 19 integrated and 28 in the market pulp field. There has been considerable modernization of these mills. Groundwood production fell over 20 percent during the war but this has been recovered, and in 1952, 568,800 short tons were produced, down from 613,500 in 1951. In 1952, 352,100 tons were exported. The export totaled 369,200 in 1951. The 1952 exports were nearly all to Europe: Britain, 70 percent; France, 11 percent; Netherlands, 6, Denmark, 3.

In chemical pulping, Norway has 16 sulfite and six kraft mills. Ten of the sulfite, and five of the latter are integrated. The rest are in the market. During the

war, much of this production was required for emergency animal fodder. In 1952, sulfite output was 454,100 short tons, down 36,600 tons. Kraft pulp totaled 92,400 short tons, actually only down 500 tons from 1951. Over 75 percent of sulfite was bleached in 1952, about one-third of this for dissolving. About 15 percent of kraft pulp was bleached.

Chemical woodpulp exports totaled 235,000 short tons in 1952. Of this, sulfite totaled 219,700, about 18,000 tons, down from 1951, while kraft pulp exports

#### NORWAY—Paper Produced

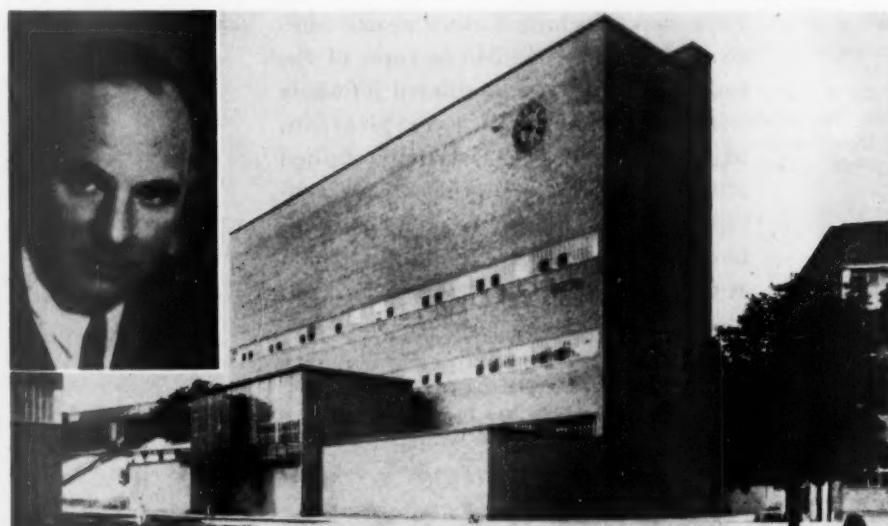
(In Thousands of Short Tons)

	Paper	Board	Total
1937 . . . . .	457	44	501
1950 . . . . .	485	45	530
1951 . . . . .	514	49	564
1952 . . . . .	466	49	515

#### NORWAY—Paper Exports

(In Thousands of Short Tons)

	Wrapping	News	Other	Board	Total
1937 . . . . .	100	195	62	25	382
1949 . . . . .	63	165	80	17	325
1950 . . . . .	82	164	85	30	361
1951 . . . . .	82	152	101	31	366
1952 . . . . .	65	131	64	27	287



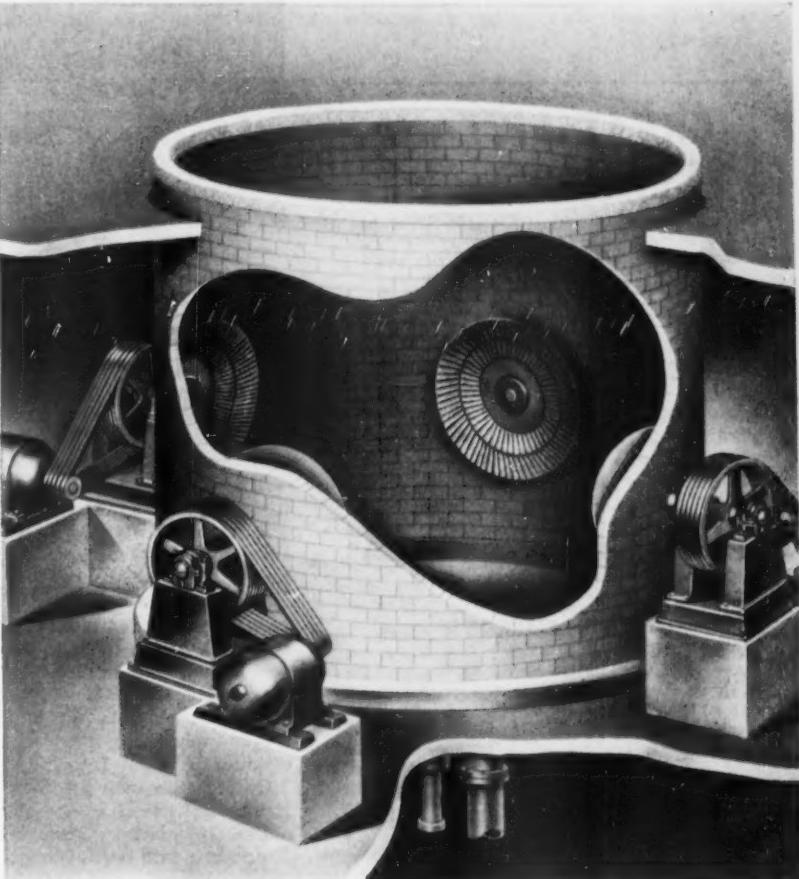
**THE BORREGAARD CO. OF NORWAY**—Aktieselskapet Borregaard, Pulp and Paper Manufacturers, is one of the largest in Europe. Top inset: ARNE MEIDELL, President and General Manager. Top view—New Digester House at Sarpsborg, Norway. Below—General view of plants at Sarpsborg. It also has new screen room, and has added more chemical products—besides alcohol, acetic acid, butanol and butylacetate.

RICE BARTON

# QuattroPulper

... a high production machine . . . ideal for disintegrating pulp, broke or waste paper

The stock is charged all at one time into the top of the vat. Four DynoPellers (described below) subject it to the vigorous dynamizing action that completely separates each fibre from its neighbor, maintaining its original length. The simple operating principle and design of the QuattroPulper eliminates the "wracking" and grief of other types of pulpers. Because there are few moving parts there is no loss of production time due to repair or adjustment. The QuattroPulper defibers the stock at low cost and produces a high quality slurry quickly and effectively.



#### The DynoPeller

is the heart of all DynoMachines. Its concave face is lined with rough, hard carbide particles. As the DynoPeller rotates it causes a suction at its center that pulls the stock toward it. Centrifugal force then causes the stock to flow rapidly over the rough carbide particles under a gentle hydraulic pressure. This effective dynamizing action completely disintegrates the stock . . . separating each fiber from its neighbor while maintaining its original length.

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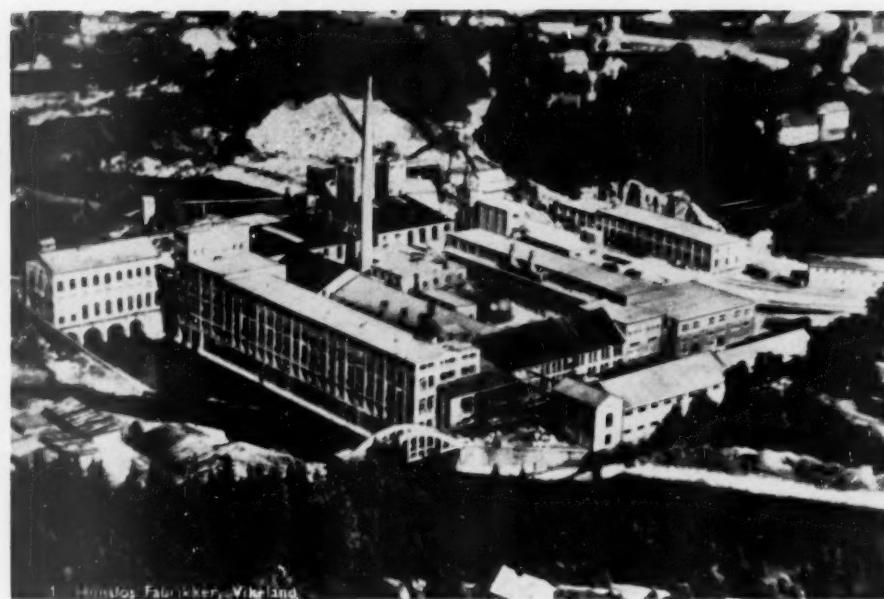
**EUROPE**



ONE OF NORWAY'S diversified producers—this is HUNSFOS FABRIKKER, located near Kristiansand S. This mill makes chemical and mechanical pulps as well as paper.

Of newsprint exports, 11.7 percent went to Britain, 7.5 to South Africa, 7 to Brazil, 6.8 to France, 2.6, to the United States (3,400 tons). Total export of all paper and board was 287,000 tons compared with 366,000 in 1951.

But pulp and paper still brought Norway its greatest foreign exchange income—it still leads in value all other exports, and for that reason the industry is determined to keep its products competitive in world markets.



Hunsfos Fabrikker, Vennesla

## GREAT BRITAIN

### Some Controls Lifted

(Great Britain's 52,000,000 persons use an average of 130 lbs. of paper per person per year.)

THE BRITISH INDUSTRY has been going through a testing period. Though the government has relaxed some controls that used to hamper free operation, producers of paper, board and related products continue to face a forbidding array of complications.

During the past few months there has been a distinct improvement in the overall situation, but the recession that set in during mid-1952 was a difficult experience.

### GRAPHIC CONTROL ARRIVES IN BRITAIN

A GRAPHIC CONTROL PANEL FOR SHARPLE-DILTS (U.S.A.) HYDRAPULPER-HYDRAFINER complete stock preparation system at EMPIRE PAPER MILLS LTD., of Greenhithe, England, which company provided PULP & PAPER with this picture for this issue. A mimic flow diagram is on the board at left. The panel was built by Igranic Electric Co. Ltd., London, in cooperation with B-C International Ltd. (Black-Clawson subsidiary) and the latter supplied all equipment.

"I feel we have achieved a gratifying measure of stability," declares William Whiteley, president of the British Paper and Board Makers Association. "I look forward to price reviews at orderly intervals so as to insure the minimum of price movements either way."

"The market for raw materials, chief of which is woodpulp, has turned to a buyers' market. It has been hinted that the present 1953 prices (high by comparison with pre-war) might be maintained by means of curtailing production of pulp at the source. Surely no one believes that this can be of permanent benefit. There will always be the pulp man who will run his plant to maximum capacity and make a reasonable profit and so there is no justification for curtailment of production to increase that profit."

"With regard to raw materials such as esparto, rags, chemicals, etc., we hope our suppliers will keep their costs of production down to a minimum and sell at a reasonable rate of profit, so avoiding the violent fluctuations which disrupt industry and adversely affect all classes of the community."

One of the new problems confronting British mills is increased cost of coal and electricity, both controlled industries. There are still some encumbering gov-

### UNITED KINGDOM—PULP

(In Thousands of Short Tons)

	Produced	Consumed
Unbleached		
Sulfite	115	1,142
Groundwood	134	1,255
Chemical	134	970
Mechanical	582	728
1950	18	
1951	18	
1952	18	

Source: Canadian P & P Assn. and U. S. Pulp Producers Assn.

ernment regulations on pulp and paper, and these were referred to by Sir Eric Bowater, chairman of Bowater Paper Corp. at its annual meeting.

"We would welcome the removal of all restraints and restrictions in respect to the use of newsprint in this country," he said, "and we look forward to the time when the publishers and ourselves are completely freed from control." Last year, the British government removed price control on newsprint. "Now," said Sir Eric, "a further measure of decontrol is desirable. Newsprint remains the only one of the many types of paper we produce that is still subject to control."

The situation in Britain is summarized in this statement from the Bowater organization:

"The trade recession in the United Kingdom set in towards the middle of the year (1952). The operations of our mills, in the United Kingdom have since picked up and they are now back to substantially full production."

"But this is not, as yet, the case with our converting plants; for the recession hit the packaging trade—sacks, drums, cases, wrappers and bags—for the hardest. However, there are now some signs of a return to more normal conditions in that part of our business, too."

The Bowater's statement refers to the company's "steady overseas expansion"—in Tennessee and elsewhere and comments: "How admirably, by the way, that is in accord with the spirit of an Elizabethan age!"

Incidentally, the slump of 1952 resulted in the Bowater stocks in Britain being written down last Sept. 30 by \$5,500,000.





# All roads lead to Hamilton, Ohio

Once upon a time "all roads led to Rome" for there was centered all responsibility for the government of The Roman Empire.

Today, in the better judgment of many a paper maker, all roads lead to Hamilton, Ohio, where "everything for the paper mill" can be obtained through The Black-Clawson organization.

It pays to center the purchase of paper mill equipment at one point:

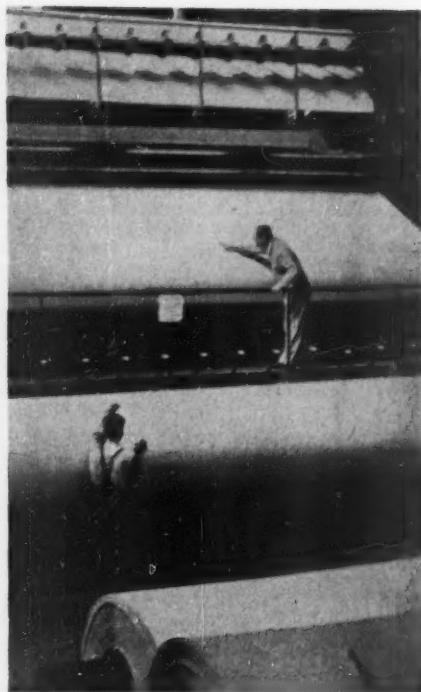
- Greater assurance of smooth and perfect operation of every machine in the entire mill.
- Just one company to hold responsible for anything that may not operate perfectly—no opportunity for one supplier to lay blame on another for performance failures.
- Better coordinated delivery schedule—equipment arriving in the order erection crews want it to arrive.

As you plan that new mill or the modernization of that older mill, keep the above in mind. See that "all roads" lead to Hamilton and benefit accordingly.



## **BLACK-CLAWSON**

THE BLACK CLAWSON COMPANY • HAMILTON, OHIO



**GIANT SUPERCALENDER IN BOWATERS KEMSLEY MILLS**—largest in all Europe—which are near ancient city of Canterbury, in county of Kent. Papermaking is a tradition among Kentish men.

Gerald W. Andrews, president of the British Wood Pulp Association, reviewing the past year, declared the most striking event was the recession:

"The rayon industry was first to suffer. Weekly consumption of dissolving pulp, which during the first quarter, had been running at around 4,000 tons, fell

**UNITED KINGDOM—WOOD-PULP-PAPER  
Converted to Thousands of Short Tons—Source: Board of Trade**

	CONSUMPTION						Newsprint	Total Paper	
	Pulp Wood	Wood Pulp	Esparo Rags	Straw	Waste Paper Produced	Im- ports		Im- ports	Ex- ports
1938 .....							2,894		
1939 .....							491	62	1,177
1946 .....	113	995	100	147	321	680	1,908	114	16
1949 .....	230	1,272	386	152	93	844	2,475	199	66
1950 .....	332	1,724	330	146	107	965	2,835	151	111
1951 .....	n.a.	1,983	389	n.a.	n.a.	3,100	171	95	973
1952 .....	n.a.	1,608	238	n.a.	n.a.	2,750	261	73	635
									219

n.a.—not available.

during the second quarter to under 2,000 tons. Stocks rose from 30,000 to 60,000 tons. In paper pulp consumption was rising during the first quarter and reached over 28,000 tons a week in March. In the second quarter it was 23,000 tons and in July the weekly average fell to 16,500. From then on, consumption rose again, and by November both dissolving and paper pulp were practically back to normal."

Mr. Andrews continues: "If we turn to the future, we can only say that visibility is poor."

**Arthur Baker's Statement**

Some economic problems were touched on by Arthur Baker, president of the Employers' Federation of Papermakers and Boardmakers when he warned of the effects of inflation and declared: "The well-being of the people in this country depends upon prosperous industry, because we are really a converting nation. The mill workers are generally much better off than pre-war notwithstanding the in-

**ARTHUR BAKER,**  
Pres. of British Employers' Federation of Papermakers, (also founder of Britain's "Tappi"), warns of inflation effects (see his statement).



creased cost of living; they now possess a vast spending power.

"The intensity of world competition determines the price of the home product and the values of sales in the export markets. The producers of the imported raw materials, which are the very lifeblood of this industry, cannot pride themselves on the manner in which they exploited this market, causing papermakers, a year or so ago, to show abnormal profits, artificially swollen by the inflation of stock values. About 60 percent of these largely

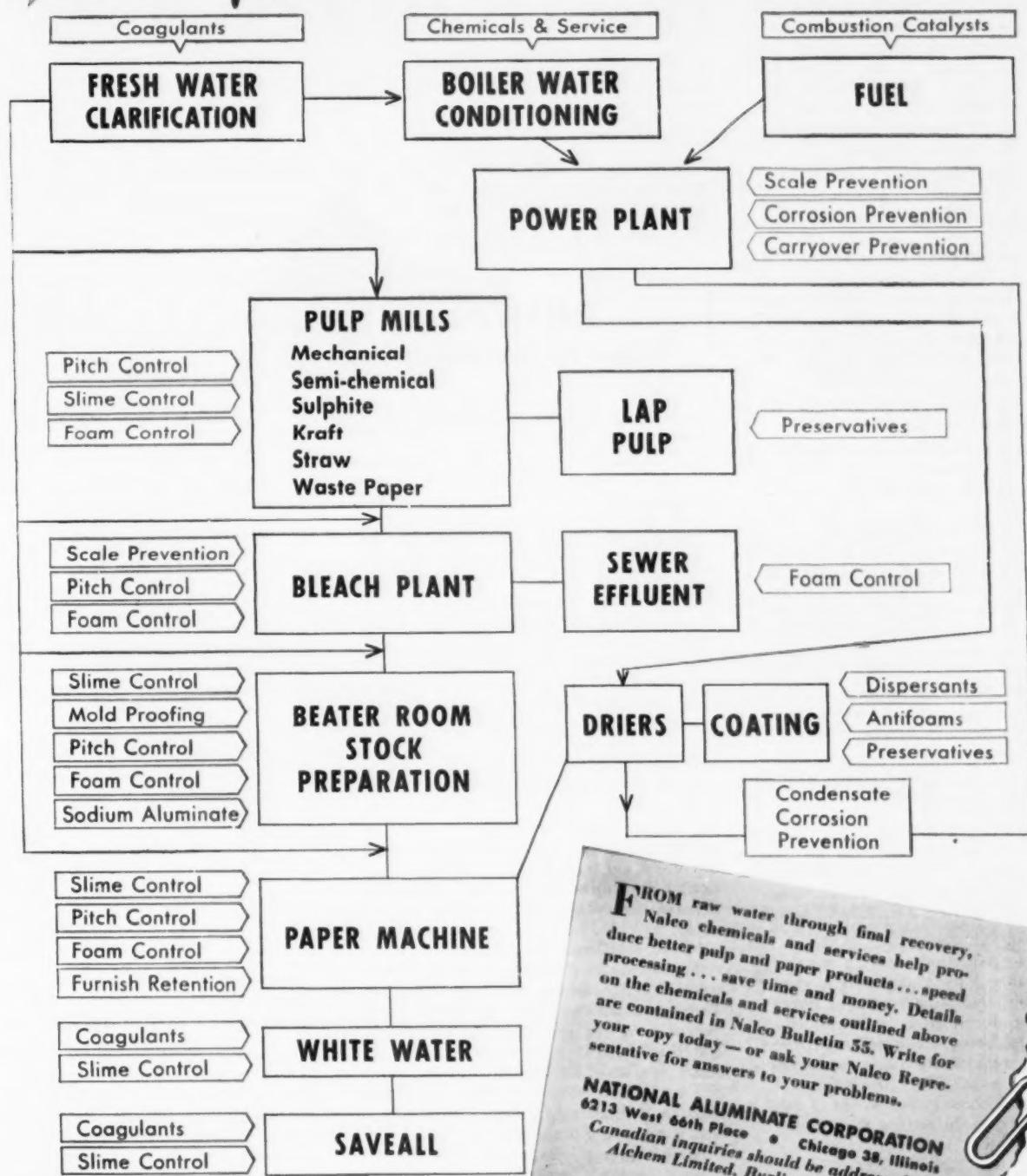
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## 1953 Review Number

PULP & PAPER

87



## EUROPE

unearned profits went in taxation, only to be followed by heavy losses in writing down stock values during 1952."

The tendency has been to go slow on expansion plans in Britain, but Bowater's plans important extensions at its big Kemsley mill where a new 70,000 ton newsprint machine is to be installed. Imperial Paper Mills has also carried out substantial improvements bringing production to 35,000 tons annually.

Good progress has been made in reforestation of England's and Scotland's timber areas, but Scottish foresters have warned that Scottish forestry can be written off unless state aid is granted. A hurricane in February swept through a wide area, blowing down 5,000,000 pine trees in nine counties of northeast Scotland. The disaster hit 10,000 acres of Scotland's best timberland, the loss in trees being estimated at \$3,000,000. This represents a loss of about one-fifth of Britain's national timber production.

"There is a strong feeling among foresters that the government measures so far are not strong enough," says Frank Oliver, Scottish forestry expert, and Duncan Ross, of the Royal Scottish Forestry Society, says that wood production is threatened unless aid is given, such as a guaranteed market and special freight rates to the mills in the south.

Annual pulp producing capacity of the country is estimated by the Forestry Commission, London, at slightly more than 1,000,000 tons, as follows: 120,000 tons of mechanical pulp; 13,000 tons of chemical pulp (sulfite process); 930,000 tons of pulp from esparto grass.

In addition, Britain imports pulp to the order of about 1,700,000 tons.

Total estimated production capacity of the paper and board industries of the United Kingdom in 1951 was 2,750,000 tons, as follows: Newsprint, 600,000 tons; kraft paper and paperboard, 250,000 tons; other paper, 1,900,000 tons.

Fibreboard production capacity is rated at slightly more than 40,000 tons a year. It is estimated that 24,000 tons of fibreboard was produced from native woods, the remainder being manufactured from waste paper, mill waste and screenings and rejected pulp. The proportion of fibreboard from home grown wood is expected to rise sharply during the coming years.

**THE CULTER MILLS PAPER CO. LTD.** of Peterculter, in Aberdeenshire, Scotland. This paper manufacturing company is over 200 years old.



## RUSSIA AND SATELLITES

### Woodpulp—In Thousands of Short Tons

	1950			1951		
	Produced	Imports	Exports	Produced	Imports	Exports
<b>Chemical:</b>						
Bulgaria .....	0	33	0	0	33	0
Czechoslovakia .....	298	0	44	314	6	33
East Germany .....	276	0	11	309	0	17
Hungary .....	0	11	0	0	11	0
Poland .....	143	75	0	176	64	0
Rumania .....	66	0	6	77	0	6
U.S.S.R. ....	1,433	99	44	1,543	44	66
<b>Mechanical:</b>						
Bulgaria .....	6	6	0	6	6	0
Czechoslovakia .....	88	0	0	94	1	0
East Germany .....	331	0	0	331	0	0
Hungary .....	7	11	0	7	11	0
Poland .....	132	0	0	132	2	0
Rumania .....	44	0	6	50	0	6
U.S.S.R. ....	882	11	33	937	0	44

(Estimated by U. S. Pulp Producers Association)

## RUSSIA And Its Satellites

**Population:** Soviet Russia—193,000,000; Czechoslovakia—12,463,000; Poland—24,977,000; Rumania—16,094,000; Hungary—9,313,000; Bulgaria—7,235,000. **Per capita consumption of paper:** Czechoslovakia, 38.35 lbs.; Poland, 25.06 lbs.; Hungary, 14.29 lbs.; Rumania, 6.80 lbs.; Bulgaria, 15.81 lbs.; Russia, 13.6 lbs.

OF THE U.S.S.R.'S TOTAL FOREST area of approximately 2,700,000,000 acres, 78% is said to be covered by conifers; and of the total volume of standing timber of 24,500,000,000 cords, 78% to 85% is accounted for by conifers. According to Alex Koroleff, in his new book "Logging Mechanization in the U.S.S.R.", the total annual wood production was 27 million cords in 1920; 83.7 million cords in 1937; and 96.6 million cords in 1940. Since World War II, figures on production have been given in terms of percentage increases over previous years, but the Food and Agricultural Organization of the United Nations has estimated a current annual cut of about 250 million cords.

Mr. Koroleff describes in detail the great strides made in developing equipment in the U.S.S.R. for logging mechanization. There seems no question that there is the "know how" to produce this equipment and that a great amount of it has been made available for use by the industry. But in spite of this, a search of current Russian publications reveals that progress is not going according to plans.

Almost every issue of *Pravda* or *Izvestia* contains something derogatory to the Ministry of the Lumber and Paper Industry. Recently *Izvestia* had this to say: "Machinery has been weakly used in lumbering. The seasonal plan for mechanized logging has been fulfilled only 63.8%.

Poor repair facilities and lack of skilled men to handle the equipment is largely responsible for the slow mechanization in the logging industry, as is admitted in the U.S.S.R. itself. Furthermore, there is a

great lack of access roads, and one letter writer to *Izvestia* made the statement that only 21.3% of the total forested area in the country had been surveyed. These facts were further pointed up by Paul Lippke, head of Hygrometer Inc., who told *PULP & PAPER* on a visit to this country that figures of forest area and wood volume in the U.S.S.R. would be wholly misleading because so much of the land is inaccessible, and that much more is not economically accessible. Mr. Lippke has been working with the European industry for more than 20 years, and at one time had a plant in the Soviet zone in Germany.

Actual production in pulp and paper is still more difficult to determine. However, since production here has consistently been reported as exceeding goals set in the five year plans, it may be assumed to be increasing somewhat along the following lines:

### U.S.S.R. Paper and Board Production

Year	Production in tons
1937	831,000
1940	812,000
1946	556,000
1947	696,000
1948	836,000
1949	995,000
1950	1,194,000
1951	1,337,280
1952	1,500,000

(Sources: United Nations Statistical Yearbook—1951; U.S.S.R. Information Bulletin; New York TIMES, Estimates)

Its need for pulp and paper is shown by new agreements signed by Russia with Finland covering the last quarter of 1952 and the period 1953-55. In these agreements, Finland is to supply to Russia for the period 1953-55: Pulpwood—300,000 cubic meters; groundwood pulp—40,000 short tons; rayon pulp—26,000 short tons; kraft paper—40,000 tons; bleached sulfite pulp—27,000 tons; newsprint—33,000 tons; and other papers—25,000 tons.

Of interest are statements made by Russians on their own industry. The following is a condensed text from an editorial appearing in a Russian publication, translated specifically for *PULP & PAPER*:

"The paper industry must, under the

# THE HARRISON LOADER CRANE

THE PULPWOOD HANDLER  
THAT GOES  
EVERYWHERE  
YOUR TRUCKS GO—



Loader Crane in actual operation

Wherever your trucks can go, the Loader Crane can go to unload them—even in small yards. Use it for stockpiling, load with it from stockpiles or direct from trucks.

With a high lift to unload trucks and a long reach to place loads on the far side of gondolas, the Loader Crane speeds up every phase of handling pulp wood on the storage yard.

A new design feature, the automatic counter weight, gives

the Harrison Loader Crane unequalled stability. Moving back as load is lifted, the counter weight transmits load stresses to the rear axle, makes operation easier, reduces strains caused by "rocking." Counter weight is hydraulically operated, fully automatic. Large tires (1800 x 26) give flotation and add to the loader's stability.

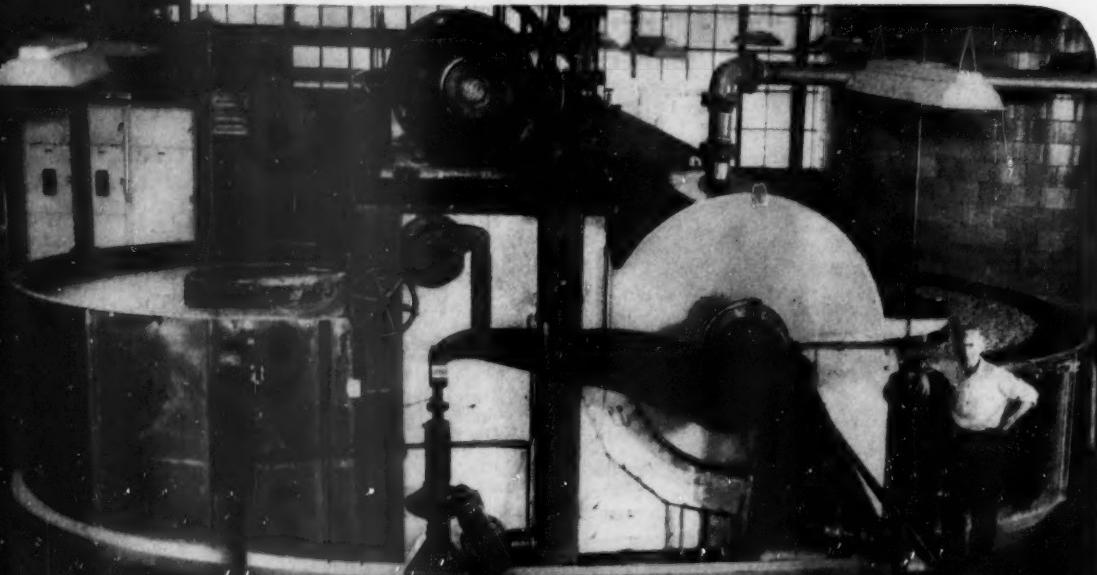
The Loader Crane is mounted on a Case "LAI" industrial tractor—weight of loader and tractor including counter weight is 24,000 pounds.

For further information write or call . . .

## HARRISON MANUFACTURING CO.

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ANOTHER **Jones** INSTALLATION



**Improved  
paper formation;  
50% saving  
in horsepower**

Results count! And the results on this **Jones Beating Unit**, installed last year at the Taylor Fibre Company, Norristown, Pa., are reported by their Paper Mill Superintendent, C. L. Horst.

"We are able to beat off stock of all grades in the new unit in one half the time it takes to achieve the same results in the old beater . . . a saving in horsepower of 50% per ton of stock.

"As to the cutting action, the actual fibre length is much more uniform, which has had the effect of improved paper formation".

Remarkably simple to install — because it is delivered completely *pre-assembled* — the Jones Beating Unit is available for either tub or Multi-Beater applications. For details, ask your Jones representative, or write us direct.



**E. D. JONES & SONS COMPANY  
PITTSFIELD, MASS.**

**REPARATION MACHINERY**

**THE SOVIET INDUSTRY** is at least 10 years behind the North American continent, in belief of DR. JOHN KEAYS, Superintendent for Powell River Co., shown here opening a box containing isotopes while he is watched by DR. GEORGE ALLEN, CPPA; C. H. E. WALKER, Powell River; and DR. ARTHUR ROBERTSON, Montreal expert on radioactivity. Dr. Keays is regarded as a highly-trained observer of Russian techniques in chemical engineering.

Fifth Five-Year Plan, increase paper output 46% in 1955 as compared with 1950. The national economy plan for 1953 envisages a considerable increase in all types of production by the cellulose and paper industry. A unique feature of the tasks confronting the cellulose and paper industry in 1953 is not only the quantitative increase in all types of production but simultaneously a marked improvement in the quality of production . . .

"In order to fulfill the 1953 plan, workers in the paper industry must make every effort to eliminate the disproportion between technological and power capacities. It must be brought about in the near future that power production will no longer be a brake on the production capacities of a number of major enterprises of our industry. . . .

"It must not be thought that there are no more reserves in our industry. There are such reserves and they must be placed in service of the people. First of all, we must see that no enterprises fail to fulfill the state plan in 1953. Unfortunately, we still have such enterprises, among them the Svetogorsk, Vyborg and Kondopoga Cellulose and Paper Combines, the Kharlu, Harlu, Sloka, Hero of Labor, Poninka, Sukhona and Archangel Combines, the Zhidachev Carton and Paper Combine and the New Life and Kamenogorsk Paper Mills.

"The Uglegorsk, Makarov and Kholm Combines did especially poor work in 1952. The managers of these enterprises are disrupting fulfillment of the assortment plan, endeavoring to fulfill the plan by producing articles which require less effort and expenditures and forgetting that strict fulfillment of the plan in terms of assortment is a basic state task for every enterprise. In their turn the officials of the chief administrations have not waged a determined struggle against poor discipline on the part of directors and chief engineers of lagging enterprises. They tolerate the shortcomings that have developed and are content with average figures, which are satisfactory for the chief administration as a whole only because of the good work of leading enterprises . . .

"Full use of production capacities constitutes a serious task for our industry. It is known that the production capacities of enterprises are utilized only 86% in the cellulose and paper industry as a whole, and even less—74.5%—in Leningrad enterprises. Equipment is poorly utilized in enterprises of the Chief Sakhalin Paper Industry Administration as well as in a number of enterprises of the Chief Central Paper Industry Administration, especially at the Kharlu and Hero of Labor Cellulose and Paper Combines and the Kamenogorsk Paper Mill.

"Elimination of unplanned down time is a major factor in struggling to fulfill the 1953 plan. Such down time still averaged



about 7% on paper-making machines in 1952 in proportion to nominal working time and about 10% for digesters.

"Capital construction work was entirely unsatisfactory in 1952 and in a number of cases prevented the opening of new power and production facilities."

#### HUNGARY

As with Soviet Russia, it is just as difficult to compile statistical information from the satellite countries. The following translation for PULP & PAPER from a Russian journal tells something about the industry in Hungary that has some appearance of authenticity:

"Remarkable gains have been scored in all branches of Hungary's national economy, including the paper industry. The material and cultural level of the population has improved and unemployment has been eliminated. The Hungarian People's Republic had already surpassed the pre-war level of industrial output 2.5 times [150%] in 1951.

"Hungary's paper industry has scored great gains in industrial output. Hungary produced 49,450 tons of paper in 1938, while despite [wartime] dislocation, paper production reached 47,407 tons even during the first year of the three-year plan. All paper enterprises of the Hungarian People's Republic are the property of the state. The main paper mills are situated in Budapest, Szolnok, Szentendre, Csepel, Diosgyör and Füzfö. These mills meet the country's paper requirements.

"Hungary's paper industry reached and exceeded the prewar production level even in 1948, while paper output increased 36.7% in comparison with 1938 during the three-year plan. The nationalization of industry has abetted further planned development of Hungary's paper industry.

"Paper enterprises will have increased their production capacities considerably through rebuilding and through being supplied with modern Soviet equipment by the end of the five-year plan for development of the national economy of the Hungarian People's Republic (1950-1954). New enterprises will also be built, including a cellulose plant operating on waste

products. Newsprint production will increase. Twenty-eight thousand one hundred tons more will be produced by the end of 1954 than in 1949.

"The level of production of the paper and printing industry will rise 116% during the five-year plan rather than 56% as originally planned. New cigarette-paper and fine paper plants and other factories will be built."

## FRANCE

### 21 Percent Decline

(France's 43,000,000 persons use an average of 52 lbs. of paper per person per year).

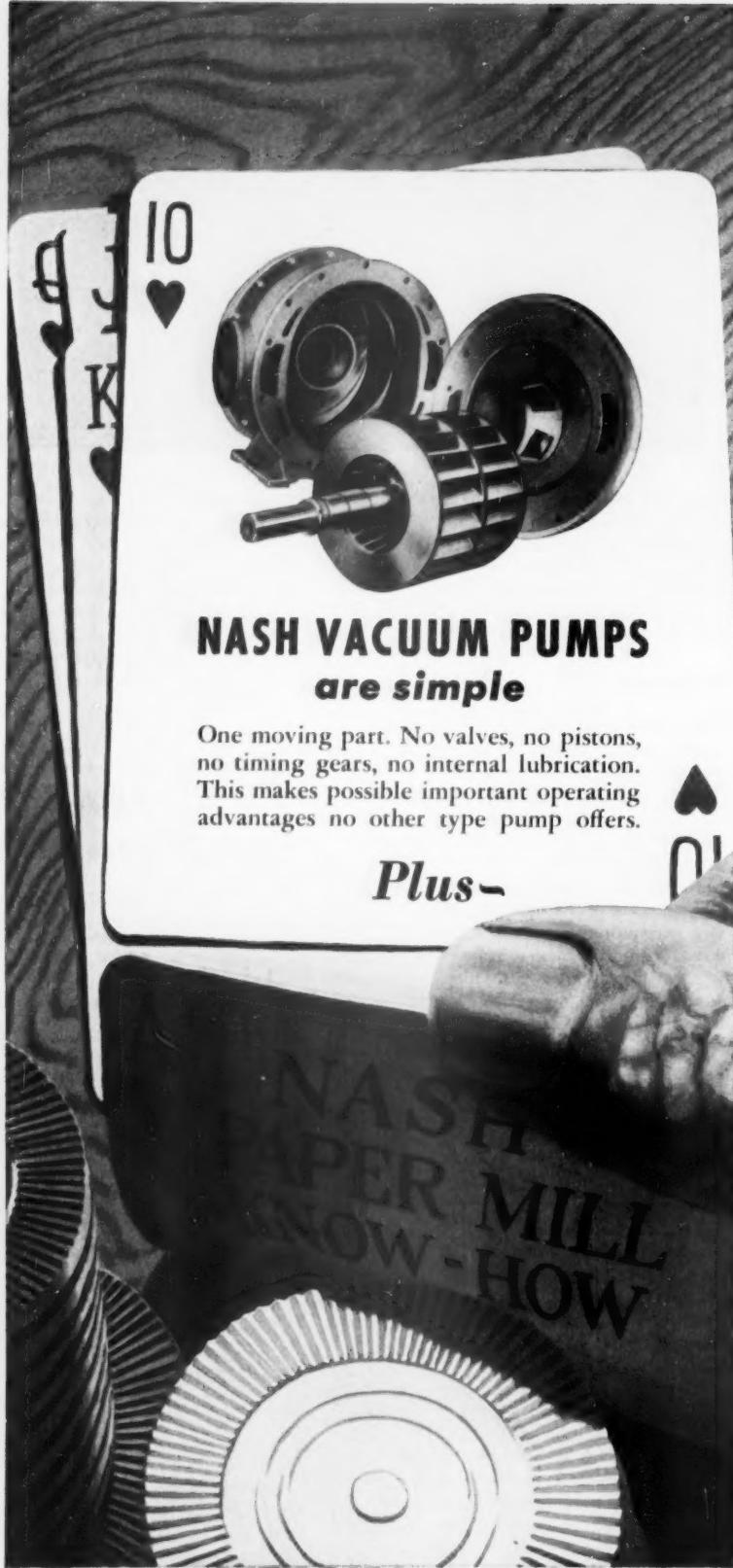
FRANCE CONTINUES as third largest producer of paper in Europe after Britain and West Germany, although production fell off in 1952 by 21 percent. Three new strawboard mills came into production and other new expansion had been just completed.

France continued to look toward hard-wood areas of France and to the resources of North Africa for further longterm development of its own pulp resource. Straw was regarded as an important future source, also resinous woods and esparto grass. It continued efforts to develop alfalfa pulp. The French papermakers who looked to esparto grass for writing, bond

#### FRANCE—PAPER 1952 vs. 1951

(In Short Tons)

	10 mos. 1952	Percent Below 10 mos. 1951
Straw wrap	71,500	3.8
Kraft paper	111,100	21.0
Other coarse, sack, etc.	133,100	27.5
Writing, printing	550,000	15.4
Strawboard	25,000	31.0
Other board	185,900	29.3
Thin papers, specialties	55,000	16.7
TOTAL	1,133,000	20.0



**NASH ENGINEERING COMPANY**  
414 WILSON AVE., SO. NORWALK, CONN



M. ANDRE LOURDELET, who is President and Gen. Mgr. of S. A. Cartonneries Lourdelet-Maricot, whose big mills are at Aubervilliers, near Paris. He is also Pres. of French General Syndicate of Paper, Paperboard and Cellulose Manufacturers and President of the Syndicate of Manufacturers of Containerboard and Boxboard. Further, he is Administrator of the French School of Papermaking.

and quality papers deplored the shipment of so much from French colonies to Britain, instead of it being directed to French mills. Competition of Swedish paper mills was a serious concern, also. Tropical woods in West Africa were being tested for possible pulp processing.

A new 14 ft. Shartle-Dilts (U.S.A.) Hydrapulper has been installed at the Aubervilliers mills of Cartonneries Lourdelet-Maricot Co. It has a seven-section Black-Clawson paper machine with hydronamic inlet and Beloit drum press, all American-made equipment, and in early 1953 it was equipped with a Pope reel provided by Black-Clawson and a Cameron rewinder. An E. D. Jones & Sons Pulpmaster, made by French agents, is another new addition.

Shipped in Oct. 1952 to Papeteries Aus-sedat, Cran Gevier, in the Haute Savoie region of southeast France were a 10 ft. Hydrapulper, No. 1 Duotrol, No. 4 Miami jordan and considerable other equipment from Black-Clawson Co. and its divisions for a stock preparation system ahead of that mill's No. 4 machine. The stock is for high grade printing and writing papers.

La Cellulose du Pin, near Paris, started up in 1952 its new straw pulp mill and completed a program doubling kraft production. Another new straw pulp mill, Cel lulose de la Seine, at Nanterre, has a new

#### FRANCE—WOOD PULP

(In Thousands of Short Tons)

	Chemical		Mechanical	
	Pro- duced	Con- sumed	Pro- duced	Con- sumed
1938 . . . .	148		230	
1949 . . . .	243	531	291	371
1950 . . . .	261	606	320	420
1951 . . . .	305	691	349	497
1952 . . . .	226	510	308	396

#### FRANCE—150 Years of Paper

Annual Production of Paper and Board in  
Short Tons

Year	Tons	Year	Tons
1800 . . . .	22,000	1938 . . . .	1,289,000
1850 . . . .	55,000	1949 . . . .	1,260,170
1900 . . . .	450,000	1950 . . . .	1,450,270
1914 . . . .	900,000	1951 . . . .	1,719,950
		1952 . . . .	1,358,500

Source: Papier, Carton, Cellulose Revue.

Dominion Engineering paper machine for wrap and bag paper from Canada.

Here follows comment on the French industry sent to PULP & PAPER for this WORLD REVIEW NUMBER by presidents of French paper companies. First we hear from Andre Lourdelet, president and general manager of Cartonneries Lourdelet-Maricot, makers of all kinds of cartons, whose big plants are in Aubervilliers, near Paris. M. Lourdelet is also president of the General Syndicate of Paper, Paperboard and Cellulose Manufacturers of France, president of the Syndicate of Manufacturers of Cases and Cartons, and administrator of the French School of Papermaking.

**By Andre Lourdelet**  
President, S. A. Cartonneries  
Lourdelet-Maricot

The production of paper and cardboard in France during 1952 has decreased by 21 percent below totals for 1951, and selling prices have progressively and continuously decreased, the drop in pulp prices being made worse by the decrease in profit margins due to the reduction of business activity.

This reduction of activity has been all the more serious as facilities for production were increasing.

Despite this situation, the French paper industry keeps on getting machinery. New additions are especially important in the pulp mills. The tendency is not to build large independent units, but rather average sized additions incorporated with already existing factories.

Straw pulp has an increasing success in this field and the review "La Papeterie" has published an issue entirely printed on paper containing 75 percent straw pulp from different mills. Alfalfa pulp production is also under study.

Concerning the paper mills efforts have been made toward centralization, and all new additions in existing mills tend, through a lower production cost and increase productivity and specialization, to permit the mills to keep their place on the European "checkerboard," in case of the economic merging of Europe.

**PAPETERIES NAVARRE** Mills on Loire River in Roanne, Southeastern France. These mills use the machine coating process in making paper.



M. LACOIN, President  
of S. A. Cartonneries  
Lourdelet-Maricot.



(Another commentary on French developments and the industry situation in France was sent this WORLD REVIEW NUMBER by another French company president, M. Lacoin, president of La Cellulose du Pin. Mr. Lacoin's comments follow.)

**By M. Lacoin**  
President, La Cellulose du Pin S. A., Paris

The 1952 crisis, critical for other countries in Europe, too, now seems far behind us in France. But when prices were high, a lot of extravagant plans were made for new mills, but were dropped when many mills had to shut down temporarily.

A "Perequation Bank" for price regulation prolonged the crisis in France and gave Scandinavian enterprises advantages in selling prices over the French. France's efforts to develop pulp resources are impeded by interest rates twice as high as in the U.S.A., and by virtual impossibility of obtaining loans over five years.

Nevertheless, straw pulp developments are progressing, though the plans for French Equatorial Africa hardwood pulp mills have been generally postponed. There are several schemes for utilizing North African alfa grass. Besides the "Cellunaf" mill which started up in 1951, one is planned in Tunisia with English capital, and one in the Rhone Valley of France, using Scotch pine there, as well as Moroccan alfa-grass. Kraft pulp would be made of the pine.

As regards dissolving pulp, a mill is being built for this purpose near Rouen, north of Paris, on the Seine River. It will use beech.

The Tartas mill of France, using Maritime pine for bleached sulfite for paper and dissolving, is planning to double capacity. The Strasbourg sulfite pulp mill will soon double its capacity, using hardwoods and firs.

Restoring the Landes forests, largely destroyed by German occupation fires, is making fine progress.

There is doubt if the "Monnet Plan" for restoring French industries will now provide any large loans for pulp and paper development or modernization. It would seem proper to protect Western European mills against any low Scandinavian or North American low prices until our mills can be modernized. Then they would be competitive.

Our own company, "La Cellulose du Pin," put into operation in mid-1952 a new container board plant with duplex machine using 100 percent kraft for the outside, straw pulp inside, and with proportions variable as desired.

## YUGOSLAVIA

### Exports Sulphite

(Yugoslavia's 18,000,000 people use an average of 25 lbs. of paper per person per year.)

TITO'S YUGOSLAVIA, considered as an ally of the Western World since his 1953 visit to London, and certainly not a satellite of Moscow, though it is a Communist country, is a producer and exporter of wood-pulp and pulpwood. For some years before World War II its sulfite industry has been important in mid-Europe.

Its unbleached sulfite pulp production increased to 39,000 short tons in 1952 over 34,540 tons in 1951, and its exports of this pulp totalled 7,000 tons, while it imported 3,000 unbleached kraft. It was to start making bleached sulfite this year. Its groundwood, all home-used, was steady around 21,000 tons.

Yugoslavia exported 600,000 cu. meters of wood to west Europe in 1950 but only about 300,000 in 1951 and probably not more than that in 1952.

It makes about 60,000 short tons of paper—that was in 1951. Though no figure was shown for 1952, the pulp trends showed it may have increased slightly. Imports were 13,762 short tons in 1951.

From A. Janezic, secretary general of the National Chamber of Commerce in Beograd, Yugoslavia, comes this report to PULP & PAPER, which he said appeared in his organization's monthly "Commercial Information":

"For some years prior to 1936 Yugoslavia used to import cellulose. That year,

## YUGOSLAVIA—PULP-PAPER

(In Thousands of Short Tons)

	Sulfite Pulp	Mech. Pulp	Paper	Exports Sulfite Pulp
1951 . . . . .	34	22	60	2
1952 . . . . .	39	21	62	7



**ONLY MILL** in Yugoslavia to export pulp—this mill—FABRIKA CELULOZE Y PRIJEDORU in Prijedor in Bosnia) exported 7,000 tons of bleached sulfite in 1952. It was to have a new bleach plant in production this year (1953). The entire mill was built new in 1951.

however, she appeared in foreign markets for the first time as an exporter, having shipped 1,115 short tons to Austria. Nevertheless, Yugoslavia continued to import cellulose even after that date. In the period from 1934 to 1939 Yugoslavia's annual imports ranged from 16,000 short tons to 25,000.

"The main suppliers in the period 1934-1937 from whom Yugoslavia imported cellulose were Austria, Czechoslovakia, and Rumania, imports from all three totaling from 15,000 to 21,000 short tons annually. In 1938 and 1939, however, this aspect changed. In 1938, Rumania's place as the third supplier in importance passed to Germany, which appeared then for the first time in Yugoslav cellulose imports. That year, the imports totaled 17,000 tons (about 10,000 from Austria). In 1939, imports were restricted to only three supplying countries due to the political situation of that period, when Austria no longer appeared in our import statistics, her exports being incorporated in those of Germany, who took the lead with 18,000 tons. Second place was held by the Czechoslovak Protectorate with a total of 4,200 tons, and the third and last place by Sweden. This latter country had until then participated in Yugoslavia's imports only in 1935 and 1936, whilst in 1939, the quantity received from that country was only 1,300 tons.

"Yugoslav cellulose exports began in 1936 with the delivery of 1,015 tons to Austria. But in 1937 exports reached 8,400 tons (U.S.A. 5,700 tons, the balance being divided between Hungary, Belgium, Holland and Italy). In 1938, exports decreased to 4,800 tons (Italy, Brazil, France and Hungary) but rose again to 6,800 tons in 1939, when the shipments

went to Italy and France.

"In the postwar period up to 1951 Yugoslavia was exclusively an importer of sulfite cellulose, when, in the second quarter of that year, the first exports of cellulose were made. In the course of 1951 the quantities exported were as follows: 1,400 short tons to Argentina, and about 700 tons to England, Germany, Italy and Trieste.

"Owing to their quality, our postwar deliveries met with a favorable reception by the foreign buyers. Some buyers declared our 'second' quality is equal, if not better, than the 'first' quality of other Central European countries.

"For the time being, Yugoslavia exports only unbleached sulfite cellulose, but is expected to export bleached sulfite, when the cellulose mill in Prijedor, now the only one producing cellulose for export, started up its bleach plant (it was to have started in 1953)."

This mill is in Bosnia and was built in 1951.

## BELGIUM

### Two News Mills Fail

(Belgium's 8,700,000 people use an average of 65 lbs. of paper per person per year.)

MOST SIGNIFICANT NEWS from Belgium is that two of its newsprint mills, with a combined total of nine machines, have been forced to shut down and liquidate all assets. Action of their shareholders was taken in April this year.

Several mills in Belgium sustained heavy losses in 1952. Also import duties on newsprint have been very low. In wood-pulp, Belgium has one sulfite, one kraft and one groundwood mill, all three integrated with paper. Other mills have a few grinders.

The kraft mill of Anciens Establissemens Louis de Naeyer, at Willebroek, however, added equipment, with a new Shartle 14 ft. Hydrapulper from the U. S. Shartle also supplied a 12 ft. one and other equipment to Papeteries de Genval, at Genval, Belgium.

Belgium still looks hopefully to future development of flax and straw resources for industry growth at home, and to papyrus grass, bamboo and wood in Belgian Congo in Africa. Three groups formed to study possibilities in the Ubangi and Mayumbe districts and Lake Leopold II, and one for making rayon pulp from the papyrus grass of Africa, have not been particularly active lately.

From William F. Boks, administrator of the Belgian international pulp sales company, Gross & Irgens, of Antwerp, and also affiliated with a Paris company, PULP & PAPER received this report:

**By William F. Boks**

**Administrator, Gross & Irgens, Antwerp**

For the Belgian paper industry (36 mills) the year 1952 offers a sharp contrast with 1951 which was a period of great activity and general prosperity. However, at the end of 1951, difficulties began to appear, which steadily increased during 1952. The difficult position of our paper industry is dramatically emphasized now that the mills are publishing their balance sheets for the past year. Several mills have sustained heavy losses.

The total production of paper and cardboard for 1952 has been 256,220 metric tons, viz. 78 percent of 1951. Consumption has been 308,530 metric tons, viz. 82.5 percent of 1951. (For amounts in short tons see tables.)

The Belgian imports amounted to 95,010 metric tons (80 percent of 1951) whereas our exports dropped to 42,700 metric tons, thus only 59.8 percent of 1951.

As is common in a weakening market, the buyers delayed their orders as much as possible, preferring to exhaust the considerable stocks which had been accumulated during 1951 by wholesale dealers, retailers and consumers. Consumption itself was suffering from the effects of a general slowdown in many other industries.

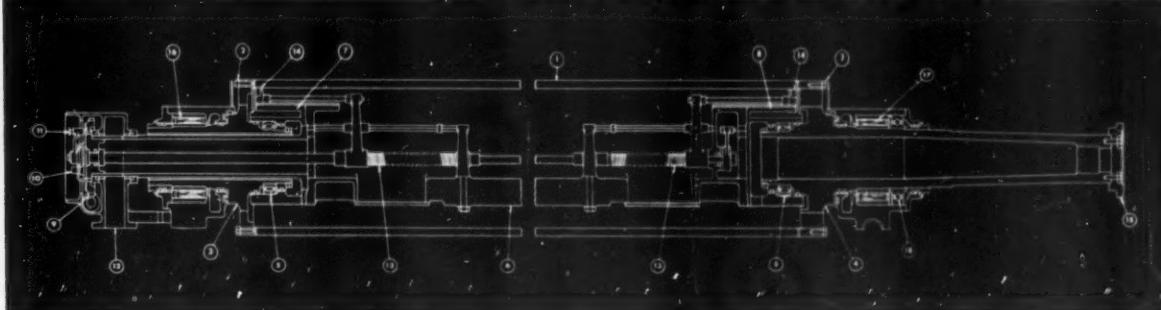
The main reason for the sharp reduction of production and exports during 1952 is due to the fact that our industry is working under adverse circumstances, owing to the high wages prevailing in Belgium as compared to those of neighboring coun-

**BAULERS, BELGIUM MILLS** of Papeteries Delcroix Ltd., near Nivelles. In 1882 Ferdinand Delcroix started making packing paper here; now mills make vegetable parchment known all over the world. Over 50 percent of employees have 25 to 40 years service. It made 9,773 metric tons last year (10,600 short tons).

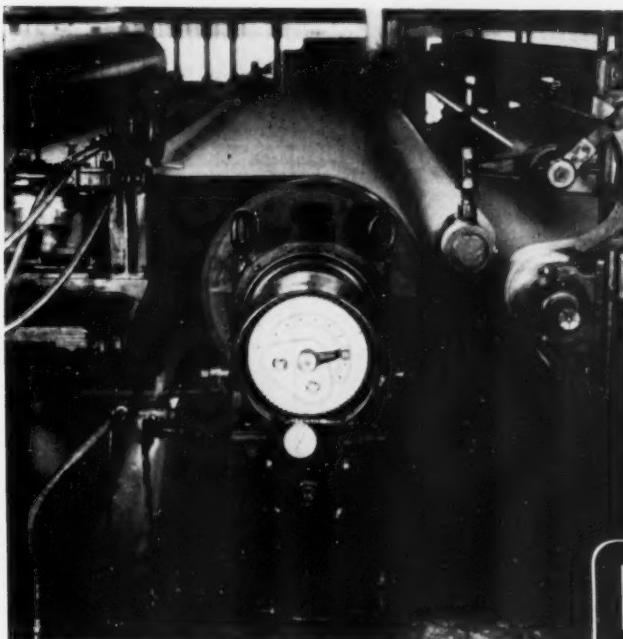


**THE KEY TO EFFICIENT WATER REMOVAL ON FOURDRINIERS**

# Downingtown Suction Cantilever Couch Rolls



- 1. Spiral Drilled Shell
- 2. Alloy Steel Shell Studs
- 3. Front Head
- 4. Rear Head
- 5. Internal Roller Bearings
- 6. Suction Box
- 7. Front Head—Suction Box
- 8. Rear Head—Suction Box
- 9. Worm Wheel Gear
- 10. Front and Rear Deckle Gears
- 11. Packing Strip Adjustment
- 12. Suction Elbow
- 13. Front and Rear Deckle Screws
- 14. Deckle Heads
- 15. Coupling to Drive
- 16. Front Main Bearing
- 17. Rear Main Bearing
- 18. Thrust Bearing



Downingtown Suction Cantilever Couch Roll showing adjusting mechanism and hood guard.

Because of Downingtown's long experience with the principle of water removal by the suction method, their Suction Cantilever Couch Roll is recognized as "standard" in the paper industry. The cantilevering feature is important because it permits easier and faster wire changing.

Downingtown Suction Cantilever Couch Rolls are furnished with suction connections either front or rear . . . and with single or multiple suction box openings. The experience of many mills shows that these Suction Cantilever Couch Rolls give long and efficient service and require a minimum of maintenance.

Write for a new bulletin "Suction Couch Rolls" which describes Downingtown Suction Cantilever Couch Rolls in detail.

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MODERNIZATION IS PROFITABLE



## EUROPE



WILLIAM F. BOKS, of Gross & Irgens, wood-pulp sales firm, wrote report on Belgium. He has toured U.S. and Canada, knows many industry leaders.

tries, and especially Holland, our partner in Benelux.

If the average salaries in Europe are termed 100, Belgian salaries correspond to 120 and Dutch salaries only to 70. The salaries paid by the Belgian paper industry are about 150 per cent of those paid by the Dutch mills, and it has been calculated that this discrepancy may result in differences up to 15 to 20 percent in the price of paper.

The home market is flooded by Dutch papers and the Belgian mills, although technically as well equipped as any other, are unable to overcome the handicap.

Belgian production cost for paper is the highest in Europe, whereas in Holland this cost is kept at an artificially low level by governmental restrictions, involving freezing of wages. The Belgian paper industry, as well as other industries, are pressing our government for protective measures.

The Belgian import-duty on all foreign newsprint has been kept very low, in order to stimulate a large diffusion of the press, and besides heavy imports of Dutch newsprint, there are also large arrivals from Scandinavia and Finland.

### BELGIUM—PAPER

(In Thousands of Short Tons)

Production: News	Book		Wrapping		Total Paper	Paper Board	Paperboard
	Fine	Coarse	Total Paper	Paper			
1939	52	85	235	26	261		
1948	48	98	245	26	271		
1949	55	96	257	22	279		
1950	68	105	304	23	327		
1951	67	93	120	54	358		
1952	58	75	90	36	282		

### BELGIUM—PULP

(In Thousands of Short Tons)

	Production		Consumption		Chem. Mech.	Chem. Mech.
	Chem.	Mech.	Chem.	Mech.		
1939.....	28	36	155	65		
1949.....	20	42	116	75		
1950.....	31	50	144	88		
1951.....	43	60	196	91		
1952.....	34	55	100	68		

### BELGIUM—PAPER

Consumption (Short Tons)

	Newsprint	Total Paper & Paperboard
1936.....	89,300	296,000
1949.....	77,100	346,800
1950.....	85,400	410,300
1951.....	87,700	407,400
1952.....	79,500	343,310

## NETHERLANDS

### News, Book Records

(The Netherlands' 10 million people use an average of 105 lbs. of paper per person per year.)

F. H. A. DE GRAFF, managing director of The Netherlands, dominant paper industry, Van Gelder Zonen N.V., made a correct forecast for the 1952 edition of this WORLD REVIEW NUMBER. He said the Dutch industry had reached peaks of prosperity at home and abroad in 1951 higher than any it had ever attained before, but that it was due for a downward trend in 1952. The industry "would have to work harder," he said in an exclusive statement.

Certainly no truer words were spoken, for the record shows the downward trend in his country and others, exactly as he predicted, but he failed to predict that his own company would show a better comparative record than the rest of the Dutch industry.



HENK VOORN, Dutch trade journal editor, only 33 this year. He started his journal seven years ago. Wrote this report for WORLD REVIEW, also writes for Hercules Powder Co.'s Paper Maker.

Van Gelder Zonen's five mills—for the first time in their history—made over 50 percent (50.78) of all Dutch production of paper (the year before they made 48.15 percent).

The Van Gelder Zonen's Velsen mill is the only one in the country making mechanical pulp from imported softwoods. They are also the only producers of chemical pulp (sulfite) and the only producers of newsprint. At Wormer Mill, this company started up late in 1952 one of the largest tissue machines, a German 167 in. wide Voith with a 200 in. dia. Yankee.

Headquartered at Amsterdam, this company's gross profits for 1952 were 22,800,000 florins, compared with 37,356,000 in 1951. Net profit—4,351,000 florins, compared with 4,244,000 in 1951.

As was widely publicized in the world press, the Netherlands were stricken by a flood disaster—one of the worst in their history—in the past year. A map with this report shows the stricken area.

Best information obtainable indicated the strawboard industry—a most important segment of the pulp and paper industry in Holland—may have suffered extensively. Its losses may not show up until this year. This would be losses in corn growing areas productive of straw. The pulp and paper industry in general was not badly hit, as most damage was in farming area. Many of the cornfields also were outside the flooded regions. The Dutch government imposed a ban on ex-

### THE NETHERLANDS

(Pulp Consumption in Short Tons)

	Ground Wood	Chemical Woodpulp	Waste Paper	Rags
1938	157,128	65,333	58,636	9,398
1939	15,131	81,525	71,193	10,055
1946	41,846	72,527	11,556	60,095
1948	80,997	102,157	105,108	142,983
1949	80,584	115,208	91,688	17,604
1950	90,100	136,070	97,570	193,604

(latest available)

### THE NETHERLANDS—Pulp Produced

(In Thousands of Short Tons—  
U.S. Pulp Producers Assn)

	Sulfite	Mech.
1949	35	42
1950	40	66
1951	38	64
1952	37	63

### THE NETHERLANDS—Strawboard

(In Short Tons)

	Produced	Consumed	Exported
1951	357,500	112,000	240,000
1952	231,000	87,560	140,000

port of straw as an emergency measure.

From Henk Voorn, editor of *The Paper World* (*De Papierwereld*), published at Haarlem, The Netherlands, came this report to PULP & PAPER, on the past year in his country:

#### By Henk Voorn

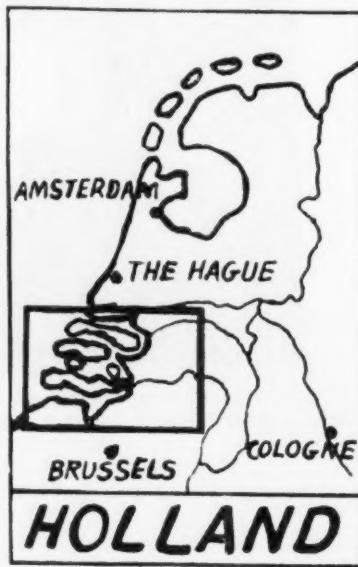
Editor, *De Papierwereld*

During 1952 there were many Dutch machines idle, at times, and it was a year of difficulty. Though production fell off, it is interesting that newsprint production (all from the Van Gelder Zonen mills) increased.

Total production of paper was 363,880 short tons, down from the all time record

### NETHERLANDS FLOODED AREA

THIS MAP SHOWS the flood-stricken area of The Netherlands, inside the "box" at lower left. Effects may be felt to some extent this year by the important strawpulp and strawboard industries, because of corn crop losses. The big pulp and paper mills generally were north and east of this area. The Velsen mill, for instance, is near Amsterdam. The Arnhem, Nijmegen and other mills are near the German border, east of the top line of the "box." Rotterdam, at the top, and Antwerp, at the bottom, were at the edges of the stricken area.



Q.

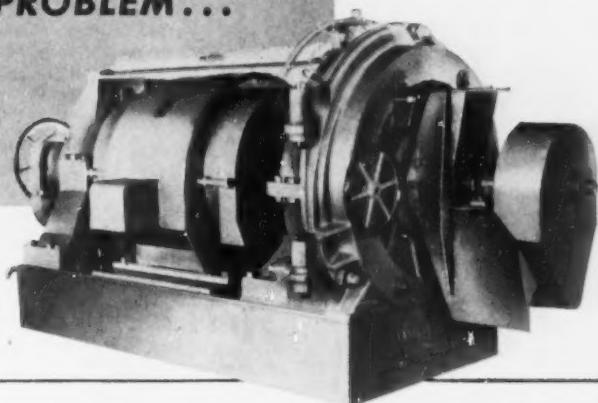
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economical refining?

A.

"S-P-R-O-U-T"

FOR THAT PULPING PROBLEM...

GET A SPROUT!



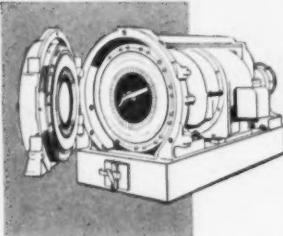
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Sprout-Waldron Refiners are chosen by most mills for all types of pulping and refining operations. They are the leading producers of semi-chemical pulp. For economical pulping and refining, choose a Sprout!

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**S  
W**



**SPROUT-WALDRON**  
**PULP REFINERS**

**THE NETHERLANDS—Paper Production  
(Not Inc. Strawboard)**  
(In Short Tons)

	News	Woodpulp	With Woodfree	Kraft Paper	Board	Other	Total
1938 . . . . .	97,329	8,655	47,248	84,655	18,103	23,645	279,635
1948 . . . . .	78,746	17,233	36,074	107,396	24,758	23,875	304,571
1949 . . . . .	81,737	17,470	55,207	104,529	20,589	30,630	310,162
1950 . . . . .	87,680	20,240	66,550	116,500	30,250	29,480	350,900
1951 . . . . .	100,980	26,180	79,090	168,310	—	29,590	404,470
1952 . . . . .	106,700	32,670	67,200	128,800	—	27,680	363,880

\* Included in preceding column.

of 405,000 tons in 1951. But newsprint was up from about 100,000 short tons to nearly 107,000, and book and magazine papers also showed a slight increase (see tables).

Production began of the first machine-coated paper in this country (Consolidated Water Power & Paper Co. license, known in Holland as the Massey process, for Peter Massey, of Chicago, who developed it). This was on a new Voith (German) machine at the Maastricht mill of Koninklijke Nederlandsche Papierfabriek. But only small amounts were produced before the end of the year, mostly trial runs.

In the very important strawpulp producing field, production of the three large producers—N. V. Strooffabriek "Phoenix" at Veendam, Coöp. Strocartonfabriek "De Eendracht" at Appingedam, and N. V. Sove at Arnhem—is estimated at 22,000 short tons (20,000 metric). The latter mill, using the Celdecor-Pomilio process, started up in latter 1952. It was also reported to make a dissolving strawpulp.

There are 17 cooperating strawboard mills in the Netherlands and these delivered more than 230,000 short tons of strawboard in 1952, considerably down from 1951. Almost two-thirds is exported. (The strawpulp and strawboard mills in Holland use more than one-fourth of all available cereal straw in that country, whereas in many countries, including the U.S.A., only from 1 to 3 percent, or even less, is used (U.S. uses only 440,000 tons out of over 160 million).

The good showing of the Van Gelder Zonen mills, as compared with other woodpulp-paper mills in Holland and all mills, for that matter, was due to their emphasis on newsprint.

After these mills, the dominant paper industries of this country are:

N. V. Berghuizer Papierfabriek at Wanfeld (wrapping papers), N. V. Koninklijke Nederlandsche Papierfabrieken at Maastricht (fine papers) and N. V. Papierfabriek "Gelderland" at Nijmegen.

Although the 1952 recession hit many, the companies generally were pleased that it had not been worse, and the end of the year found them more optimistic over the future. They had weathered the storm.

In autumn 1952 there was a revival of small scope which could not make good the loss in production. Prices went down in the same measure as in other European countries but at the new raw materials prices they may still be considered as profitable. Van Gelder Zonen complains of too low a price for newsprint.

There was a steady modernization of the paper industry in Holland, where

there is a great tendency to invest, chiefly from their own means, considerable sums in the mills.

The new machine at Wormer (Van Gelder Zonen) described and pictured in my 1951 report, was ready in April 1952 but as it showed a rather severe construction defect it did not come into operation until the end of the year.

Also installed in 1952 was the new German (Dörries Co. of Duren) Yankee machine at the N. V. Wed. Schut Mill.

American equipment delivered included a new Shartle Hydrafiner and Duotrol for a Shartle-Dilts 60 ton stock preparation system which that company had originally installed at Koninklijke Nederlandsche Papierfabriek at Maastricht in 1950. This is for base stock for coated papers.

## SWITZERLAND Production Stays Up

(Switzerland's 4,800,000 people use an average of 105 lbs. of paper per person per year.)

SWITZERLAND SHOWED a slight increase in both paper and paperboard production in 1952 as compared with 1951, but the prices were lower and demand was described as "not so constant."

The end of the year however, found the record of paper production totalling 296,000 tons, including board, and paper grades alone were 225,000 tons. In each paper and board, the increase had been about 5,000 tons.

**SIEGFRIED H. AESCHBACHER,** Manager of Balsthal Mills of Switzerland — groundwood and paper — who sent report for WORLD REVIEW readers.



PULP & PAPER received reports from Siegfried Aeschbacher, who has been a United States visitor in recent years, and who over a year ago became manager of the Balsthal Mill, and formerly was manager of the Utzenstorf Mill. Reports also came from W. Lanz, secretary of the Swiss Pulp and Paper Industry Association.

"In 1952 the demand for paper was not so constant and the decline of the Scandinavian pulp and paper prices influences the Swiss market," said Mr. Lanz. "But for all of that, the totals for production and for sales can be considered satisfactory."

In July the prices were reduced 30 to 35 percent for pulp and about 18 percent for paper. Sulfite pulp production was down about 12 percent at the end of the year, but groundwood remained steady.

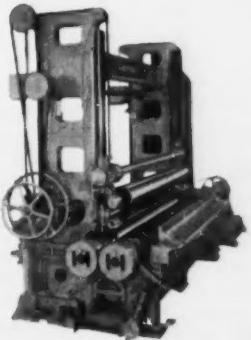
A. M. Hurter, of Stadler & Hurter, Montreal, had brought back word last year of several new machines planned and it was presumed some of these were going in. Beloit Iron Works, for rebuilding of a tissue machine for Balsthal Paper Mills, supplied a new air-cushioned inlet, grooved couch roll, suction press, wringer rolls and air guides. The rebuild increased production more than 25%.

Here are the mills that make woodpulp

**A NEW PICTURE OF SWITZERLAND'S ONLY SULFITE MARKET PULP MILL**—the Cellulosefabrik Attisholz, at Attisholz, near Solothurn. It makes virtually all the bleached and unbleached sulfite made in Switzerland. Note woodpiles in foreground. One other mill sells some pulp—a small groundwood mill. Two other integrated mills make some sulfite. This mill is principal supplier to the Utzenstorf Mill, which installed a Pusey-Jones news machine in 1950.



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**SWISS PRODUCTION**  
(In Thousands of Short Tons)

	Sulfite Pulp	Ground-Wood	News-Print	Other Printing Paper	Wrapping Paper	Other	All Paper	Paper Board	Paper & Board Total
1935 . . . . .	45	43	34	29	22	27	112	40	152
1945 . . . . .	62	52	40	36	35	34	145	44	189
1949 . . . . .	72	69	50	44	42	40	176	51	227
1950 . . . . .	80	77	52	50	45	40	187	55	242
1951 . . . . .	97	87	55	55	53	57	220	66	286
1952 . . . . .	95	88	55	56	53	61	225	71	296

in Switzerland:

Cellulosefabrik Attisholz, sulfite pulp; Papierfabrik Balsthal; Papierfabrik Tiberist; V. Laager, Bischofszell; Papierfabrik Cham AG; Papierfabrik Grellingen; Papierfabriken Landquart; Papierfabrik Laufen; Cartiera di Locarno, Tenero; Papierfabrik Perlen; Fabrique de Pâtes de Bois, St.-Sulpice, Papierfabrik Utzenstorf; Papierfabrik Netsch; and Papierfabrik Zwingen; all groundwood. Cham AG and Perlen also make sulfite.

Generally only Attisholz and St.-Sulpice sell the woodpulp which they produce. All other mills use their pulp for their own paper production.

chemical pulp per week.

"During the last 12 months, we have installed an 87-in. machine for the manufacture of double faced corrugated board, purchased from the S. & S. Corrugated Paper Machinery Co., Inc., Brooklyn, N.Y. This will enable our company to increase its output by 200%.

"In August 1952 we commenced erection of a five vat board machine for the manufacture of chip and kraft lined board. This 86-in. machine is expected to go into production before the end of the year. For 12 months it will produce 150 tons per week but capacity can be increased to 350 tons. At present, all types of solid board are being imported.

"In Ireland we are the first company to start the manufacture of our own pulp."

The U. S. Pulp Producers records failed to record any woodpulp yet made in Eire for 1952, the imports and consumption both totalling about 1,000 tons of mechanical and 12,000 tons chemical pulps. This was a drop from 1951, when Eire imported and consumed 3,000 tons of groundwood and 21,000 tons chemical.

Paper imports, largely newsprint, was valued at about \$15,000,000 in 1952 and exports, mostly paperboard grades, at about \$4,000,000.

Eire's total paper and paperboard production was estimated at 35,000 tons in 1952. There are seven mills in Eire:

Clondalkin Paper Mills, Ltd., Clondalkin, Co. Dublin; Drimnagh Paper Mills Ltd., Naas Road, Dublin; Packing Materials Ltd., 87-88 North Wall, Dublin; Swiftbrook Paper Mills, Saggart, Dublin, and Irish Wallboard Co., Ltd., Barrowford, Athy, Co. Kildare, and National Board & Paper, Waterford, which started up in 1950.

**EIRE—PAPER**

(In Short Tons)

	Produced	Exports	Imports
1949 . . . . .	10,029	1,239	52,993
1950 . . . . .	22,046	5,242	66,834
1951 . . . . .	24,000	11,364	60,000 (latest available)

**SPAIN**  
**Plans Kraft Mills**

(Spain's 30,000,000 people use an average of 20 lbs. of paper per year per person).

ANTONIO DE SABATÉS, general manager of La Papelera Española and subsidiaries, Spain's largest paper industry, has provided most of this new 1953 report on the trends in his country.

There are plans reported for construction of two new kraft mills in Spain—one in Galicia by his company to make bleached and unbleached kraft pulp. The other, in the north, to make kraft paper and bags. If woodpulp supply continues good from overseas, it is also probable that a newsprint mill, down for 15 years, will resume operations.

Data for 1952 shows pulp production in Spain was up to 195,000 short tons, about 37,000 over 1951 and about six times what it was in 1935. But paper production, up to 212,000 tons, was still climbing but not back to the 1935 mark (see tables).

"As power output in Spain depends on hydroelectrical plants and rain has been plentiful in 1952, a better pulp production has been possible during the year," wrote Mr. Sabatés. "This, and increased pulp imports have made for an easier paper situation.

"On the other hand, the sharp rise in the price of imported pulp during 1951 and the first part of 1952, had caused about a 25 percent reduction in paper market operations temporarily. Notwithstanding this circumstance, pulp and paper manufacturers have improved, their mills striving for a better output, in quality and quantity. Among new plants under construction are two new digesters in La Papelera Española's straw mill in Valencia, with a capacity of twenty daily tons of bleached pulp. These digesters are incorporated in the mill which is a complete unit with private electricity supply and electrolytic plant for production of soda and chlorine. The adjoining paper mill, owned by the same company, produces toilet and packing paper. The pulp

"PAPELERA DEL OARSO," Spanish newsprint mill which has been shut down for 15 years, is expected to start up production again at Renteria, Spain. View at left is general exterior view of properties. In picture at right is the paper machine which will probably produce 60 tons newsprint per day.

**EIRE**  
**To Produce Woodpulp**

(Eire's 3,000,000 people use an average of 50 lbs. of paper per person per year.)

FIRST HOME-PRODUCED woodpulp made in modern times in Eire was to begin, at last reports, in the newly built Killeen Paper Mills, Ltd., at Inchicore, near Dublin, processing native Irish timber with chemical and semi-chemical processes.

G. Munford, manager of the company, announced it would start up during 1952, making double-faced corrugating, and later wrapping, bag and liner, with U.S.A. and British-made machinery.

From the Killeen Paper Mills Ltd., Inchicore, near Dublin, we learn: "In April 1953, we commenced manufacture of semi-chemical woodpulp for production on our Fourdrinier machine of papers used in manufacture of double faced corrugated containers. The raw materials, namely hardwoods and softwoods, are purchased locally, and it is anticipated that there will be sufficient supply of timber in Southern Ireland to enable us to produce a minimum of 100 tons of semi-



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## EUROPE

**ANTONIO DE SABATES,**  
Gen. Mgr. of Spain's  
biggest paper industry,  
*La Papelera Espanola*,  
announces plans for a  
new bleached and unbleached  
kraft pulp mill.



excess is sent to other paper mills in the north of Spain.

"La Papelera Espanola is also building a new mill in Galicia, that will produce 100 tons daily of bleached and unbleached kraft pulp.

"Our company has increased its output of paper bags for mineral and chemical products and, through its affiliated companies, of all kinds of paper commodities."

Other companies have also improved their plants, PULP & PAPER learned. Home grown materials are being used more and more for the production of pulp—especially Spain-grown esparto grass, which before 1936 was exported to England. Now it is bought entirely by the Spanish mills. With this important quantity of raw material, it is estimated that 160,000 tons of pulp, including groundwood, were produced in 1952 in Spain.

National-made pulps have proved very useful for certain kinds of paper. Indeed, for some, a better result has been obtained by using a certain proportion of esparto and straw pulp than by having 100 percent imported woodpulp.

The efforts of Spanish manufacturers in building esparto and straw pulp mills were rewarded in the first part of 1952, when pulp imports were low, owing to currency difficulties. If the new mills had not existed, a very acute shortage of paper would inevitably have been suffered.

Prospects changed radically last summer. Import pulp prices fell sharply. As paper prices also declined, consumption increased and the year finished on an optimistic note.

### SPAIN—PULP PRODUCTION

(In Short Tons)

	Kraft-	Ground-			
	Sulfite	Soda	wood	Straw	Total
1935	11,025	—	16,537	6,615	34,177
1949	65,210	4,504	21,353	12,224	103,993
1950	101,883	5,587	25,536	13,859	146,866
1951	103,143	6,123	28,550	20,915	158,731
1952	119,020	6,820	37,171	32,630	195,641

### SPAIN—PAPER PRODUCTION

(In Short Tons)

	Fine	Tissue	Newspaper	Kraft	Paperboard	Printing Paper	Total
1935	15,435	2,756	8,820	7,717	44,100	154,350	233,178
1949	54,494	1,653	19,536	4,762	23,686	96,631	156,665
1950	12,429	2,205	22,020	5,179	29,038	117,317	189,292
1951	13,115	2,415	25,270	6,100	32,500	122,350	201,750
1952	13,410	2,750	25,550	10,536	36,448	123,957	212,648

If imports of woodpulp continue in the same quantity, it is probable that the "Papelera del Oarso" mill, that has not been in operation for over 15 years, will produce newsprint at a rate of 60 tons per day.

A second machine for cellophane will be put in operation in the Burgos' plant of "La Cellophane Española." This company has also set up new machines for printing part of its cellophane production.

## PORTUGAL

### Sells Pulp to World

(Portugal's 8,600,000 people use an average of 14 lbs. of paper per person per year).

THE NEW PULP & PAPER MILL being built by a company headed by Eduardo Rodrigues de Carvalho, Portuguese industrialist, at Cacia, 170 miles from Lisbon, did not get started in 1952—as reported it might in this column last year—but it is hoped to start part of its operations by the end of 1953.

A Combustion Engineering, Inc. (U.S.A.) recovery boiler and power boiler were being installed.

The paper machine and British equipment will be ready soon. A kraft pulp mill with Swenson evaporators and Sandy Hill bleach plant, as well as groundwood production also are planned. Equipment for the Sandy Hill-Kamyr pulp bleaching plant has been shipped from the U.S. The products are to be a wide range—newsprint, printing, bag, kraft, board. This is the Companhia Portuguesa de Celulose.

Meanwhile, Portugal's unique specialty quality sulfite mill, with pulp which it sells all over the world, is doubling its production of easy bleaching, unbleached eucalyptus woodpulp. This is the Caima Pulp Co., at Quinta do Caima, Albergaria-da-Nova.

Even while Portuguese paper mills were having difficulties this past year, this unusual pulp mill kept running full. Its present capacity and production last year was 6800 metric tons (about 7400 short tons).

The Portuguese government allows it to export less than 50 percent. There are demands all over the world for this short-fibered eucalyptus pulp for blotting papers and high grade printing papers where extra opacity and brightness are required.

During 1953, this mill hoped to start up two new digesters, mostly now installed, and its first expansion in years.

Toward the end of 1953 it was expected that the Caima mill's new wet end on a pulp machine would be running. It has a fan type dryer. The whole machine was to be in operation by the end of 1953 or early 1954. Then, the mill would double its

## PORTUGAL—PRODUCTION

(In Short Tons)

	Chem. Woodpulp Production	Paper Production
1951	7,400	44,230
1952	7,400	35,000

eucalyptus pulp production, it is expected.

Other new improvements include new steam and oil burning boilers, and a complete new power house, and other additions.

Temporarily bad news in Portugal was the closing down of the Prado group of paper mills, largest in the country. But this company was reorganized and the mills started up again.

At Graham's Abelheira Mill, drying cylinders cracked on a new European made machine which started up new at the end of 1952.

A complete new pulp and paper mill, 25 tons daily, and converting plant is to be started in latter 1953 for Celluloses do Guardiana, S.A., of Lisbon, by Parsons & Whittemore, Inc.-Lyddon & Co. Ltd., with machinery supplied by their affiliates, Black-Clawson of U.S.A. and Mills-paugh Ltd., of England. The mill will use straw, waste paper and imported pulp.

## WEST GERMANY

### New Semi-Chem Mill

(West Germany's 48,700,000 people, plus 2,200,000 in West Berlin, use an average of 79 lbs. of paper per person per year).

PULP & PAPER is fortunate to be able to present an authoritative summary on the pulp and paper situation in West Germany—the German Federal Republic—written especially for this issue by an outstanding leader of the German industry, President Max H. Schmid of Zellstofffabrik Waldhof, Weisbaden, Germany.

Production declined in all woodpulp grades from the record post-war highs of 1951, but in dissolving and groundwood stayed above 1950. Total woodpulp produced was about 560,000 tons chemical and 488,000 groundwood. Esparto and straw chemical made up 42,000 more. In paper, however, book, fine, newsprint paperboard grades showed further increases in 1952 over 1951. (See tables).

Here follows President Schmid's comments:



MAX H. SCHMID, President of Zellstofffabrik Waldhof, Weisbaden, Germany, whose comments appear in this review. He was a recent visitor in U.S.A.



VIEWS FROM WEST GERMAN MILLS:

Top left: A Yankee Machine at Kostheim Mill of Zellstofffabrik Waldhof. Lower left: A creping machine and winder for paper towelling at Kostheim mill.

Right: World's largest installation for production of ergosterol at Mannheim sulfite pulp mill of the Waldhof Co. Aiming to utilize as many constituents of wood as possible, the Waldhof operation is producing ergosterol from wood sugars. Ergosterol is the basic material for production of the antirachitic (anti-rickets) Vitamin D. Only experimentally, this product has been made from waste liquor in U. S. A.

See picture of chlorine dioxide preparation plant in a German mill in the "World Pulp Trends" section of this issue.

**By Max H. Schmid**  
**President of Zellstofffabrik Waldhof,**  
**Weisbaden, Germany**

Early 1952 witnessed a further increase of output and sales in several divisions of the West German pulp, paper and board industry. In April 1952, however, a marked decline made itself felt, and the lowest level was reached in summer 1952. During summer, the industry operated at about two-thirds of its actual capacity. Since the fall of 1952 a slight upward movement has been apparent.

In 1951 the German prices for pulp and paper did not rise in line with what we considered exorbitant Scandinavian quotations, though, it is true, they had to be raised early in 1951 and again in early 1952 owing to increased pulpwood prices. Since May 1952 there has been a gradual recession, but prices have not dropped to the present low level in Scandinavia. On the whole, West German prices for products of our industry showed a development similar to that in the United States and far less hectic than fluctuations in the Scandinavian countries.

There was no substantial increase in the capacity of West Germany's pulp and paper industry in 1952. In view of the soft-wood shortage, the future will presumably bring no new expansion of existing sulfite mills either.

On the other hand, the establishment of a straw pulp mill with a capacity of 24,000 metric tons (26,400 short tons) is under consideration.

At the Mannheim mill of Zellstofffabrik Waldhof, installations are being made for

the production of about 15,000 metric tons (16,500 short tons) of semi-chemical pulp a year. Part of the plant has already been put into operation, and later extensions have been provided for.

Paper mill capacity is being increased by the erection of several new machines, especially for newsprint, but even this increased capacity will not suffice fully to cover West German requirements from domestic production, particularly in view of the fact that per-capita consumption

#### WEST GERMANY—PULPWOOD

(In Thousands of Cords)

	Produced	Imported	Total Received	Total Consumed
1939 (All German)	1,915	910	2,916	3,390
1949 (U.S., British Zones)	876	69	945	844
1950 (U.S., British, French Zones)	1,082	216	1,398	1,290
1951 (West Germany)	1,933	548	2,486	2,116
1952 (West Germany)	1,074	381	1,455	1,363

#### WEST GERMANY—PAPER PRODUCTION

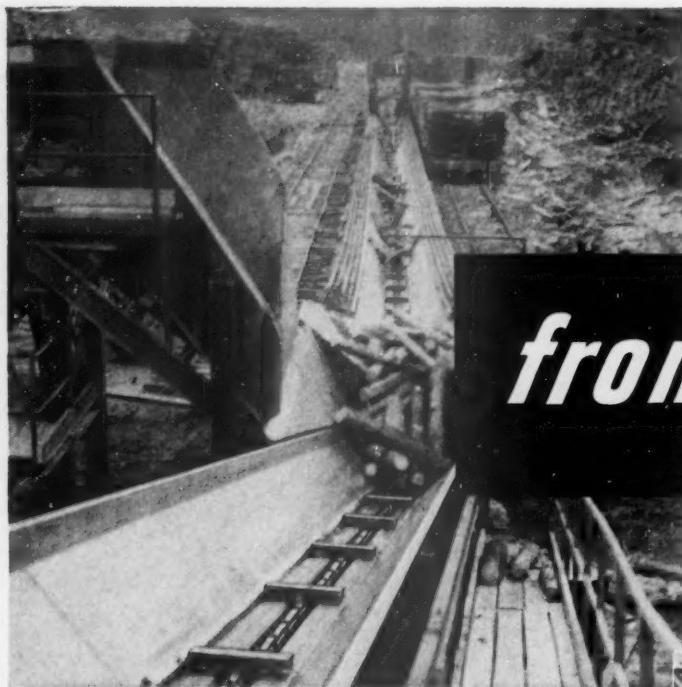
(In Thousands of Short Tons)

	Book & Fine	News	Tissue	Kraft	Total Paper (Includes other grades)	Paper Board
All Germany:						
1939	242	504	39	278	2,956	1,057
West Germany:						
1949	35	140	10	123	983	407
1950	69	187	15	145	1,258	464
1951	64	178	18	157	1,438	548
1952	68	191	17	111	1,382	487

#### WEST GERMANY—WOODPULP PRODUCTION

(In Thousands of Short Tons)

	For Paper Sulfite	For Paper Kraft	Rayon & Dissolving	Straw-Esparto	Total Chem.	Ground Wood
All Germany:						
1939	1,022	130	302	94	1,545	1,150
West Germany:						
1949	343	3	97	23	466	362
1950	444	1	128	36	610	435
1951	468	1	179	46	694	506
1952	425	1	135	42	603	488



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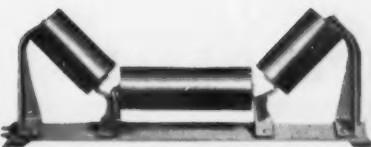
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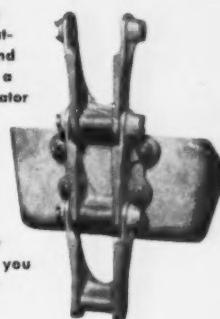
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E U R O P E

(79 lbs.) still falls short of the pre-war figure (103 lbs.), which in the rest of Western Europe—with the exception of the United Kingdom—has already been surpassed.

In the course of 1953 Zellstofffabrik Waldhof will begin construction of a container plant. The program of this factory will be aimed at furnishing German trade and industry with corrugated fiberboard boxes which, while in general use in the United States, play a far less important part than wooden crates here. Their adoption seems to be indispensable, above all, for export shipments to the U.S.A. and off-shore deliveries. In the years to come, the container plant will be supplemented by facilities for the production of, first, kraft board and, later on, kraft pulp from pine and wood waste.

Before the war Germany exported fairly large quantities of paper, and on the whole her pulp exports were larger than her pulp imports. Now that the mills in East and Central Germany are lost, the Federal Republic depends on foreign supplies for practically all of its sulfate and part of its dissolving pulp requirements. Purchases of sulfite paper pulp from abroad are negligible, but imports of paper, especially of newsprint, are substantially higher than before the war. In pre-war times, paper exports were mainly accounted for by first-class specialties. This is still so—even to a much greater extent—and future developments are expected along these lines.

Here is a complete list of the pulp companies in the Federal Republic. On an average, 10 percent of their output is exported, 60 percent sold on home market and 30 percent converted in integrated mills.

### Pulp Companies in West Germany

#### Bleached and Unbleached Sulfite Pulp:

Aschaffenburger Zellstoffwerke AG—  
Head offices: Redenfelden (Oberbayern).  
Mills at: Aschaffenburg, Redenfelden,  
Stockstadt, Welsum.

Zellstofffabrik Waldhof—Head offices:  
Weisbaden. Mills at: Mannheim, Kostheim, Kelheim, Wangen.

Cellulosefabrik Okrifel GmbH, Okriftel/Main—(pulp mill of Phrix Co.).

Hannoversche Papierfabriken Alfeld-Gronau, vormals Gebr. Woge, Alfeld.

Westfälische Zellstoff—AG. "Alphalint"  
Wildhausen.

Papierfabrik Baienfurt AG., Baienfurt (Krs. Ravensburg).

Schwäbische Zellstoff Aktiengesellschaft, Ehingen (Donau).

#### Unbleached Sulfite Pulp:

Papier-und Cellulosefabrik Georg Leinfelder, Schrobenhausen (Bayern).

Pfleiderer & Co., Teisnach (Niederbayern).

Cellulosefabrik Alzenau (Unterfranken).

Ettlingen-Maxau Papier-und Zellstoff-

werke AG, Ettlingen (Baden).

Cellulosefabrik Ernst Höttler GmbH, Hann.-Münden.

Gebr. Grünwald, Kirchhundem-Hoflohe.

Wilderich Graf Spee, Alme (ü. Brilon).

Papierfabrik J. H. Eppen, Winson a.d. Luhe.

Papierfabrik Scheer, J. Kraemer, Scheer (Krs. Saulgau).

Max Egon Fürst zu Fürstenberg, Neustadt (Schwarzwald).

#### Bleached Sulfate Pulp:

Felix Heinr. Schoeller, Reflex-Papier-Fabrik, Düren/Rhld.

#### Straw Pulp:

Rheinische Strohzellstoff-Aktiengesellschaft, Rheindürkheim (Krs. Worms).

J. W. Zanders, Feinpapierfabrik GmbH, Bergisch-Gladbach.

Felix Heinr. Schoeller, Reflex-Papier-Fabrik, Düren/Rhld.

**WERNER WERENSKIOLD,**  
General Construction En-  
gineer, who is Honorary  
President of Austrian  
Pulp and Paper Associa-  
tion.



since the beginning of the program in 1948 had reached \$3,305,549 by Feb. 1953, of which the greater portion (\$2,883,422) was advanced for new machinery and equipment for modernization. The attention paid to this industry has affected a complete recovery of Austrian production levels beyond those that existed in 1937 before World War II.

In the summer of 1953 a new Pulp and Paper Institute at Graz University was being completed and formally opened, equipped with MSA funds aid.

Of the 100 mills operating in Austria in 1952, according to the Austrian Paper Assn., by far the greatest number, 33, were hand operations on paperboard; 23 made mechanical pulp; 17 made paper; 13 made paper and chemical pulp; 4 made chemical pulp; 2 made machine-manufactured paperboard; and 2 made colored paper. Concentration of the paper and chemical pulp mills is principally in Styria, while the mechanical pulp and paperboard factories are located in Carinthia.

Overshadowing of what used to be ample

timber resources in the war period has left a serious situation that has been supplemented by utilization of saw mill wastes and imports of pulpwood—principally from Yugoslavia. About 13 percent of total pulpwood consumed was imported in 1947 with 9,425 short tons coming from Czechoslovakia that year and 34,952 tons from Yugoslavia. However, pulpwood imports had fallen to 8 percent of requirements in 1951 in spite of increased mill capacity with 78,822 short tons coming from Yugoslavia and the remainder from Germany.

**Mechanical Pulp:** Completion of the MSA program will bring mechanical pulp capacity to 132,000 short tons as compared with the 1948 capacity of 110,000 short tons. Modernization completed or going on at present affects wood preparation equipment; the construction of Gilgh silos for improved pulp storage, and installation of 12 new grinders which will bring the number in operation in 1953 to 149.

**Chemical Pulp:** Since 13 of the 17 chemical pulp mills in Austria are integrated, only four make chemical market pulp and only one of these, sulfate. This has resulted in the use of sulfite papers where

#### VIEWS FROM AUSTRIA:

Top left: Wet end of new Sandy Hill Iron & Brass Works-made (U.S.A.) fine paper machine for ARLAND PAPER CO., Graz, Austria.

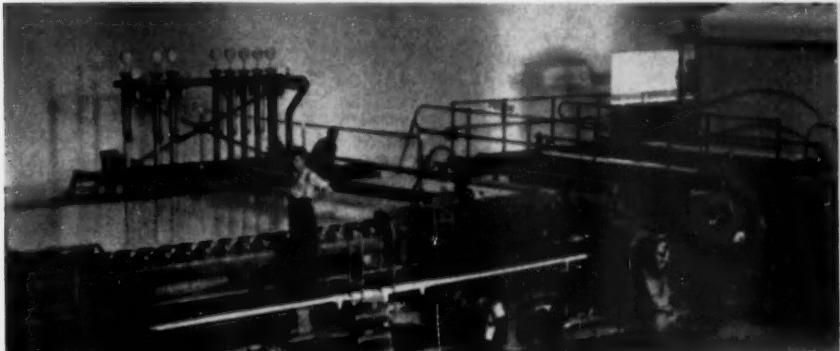
Lower left: Hand feeding of chipper at FRANTSCHACH MILL in Lavant Valley, where U.S.A.-MSA funds financed aid is continuing.

Right: This sign at entrance to Frantschach mill explains that U.S. funds are expanding and rebuilding its mills. "ERP" stands for what is now the Mutual Security Agency. A Bagley & Sewall 187 in. machine shipped in late 1952 and Sutherland refiners were among new equipment.

## AUSTRIA Aid Brings Trade Need

(Austria's 6,881,000 people use an average of 61 lbs. of paper per person per year).

PROGRESS IN REHABILITATION of the Austrian (pulp and paper) industry is continuing as a result of continuing assistance of U.S.A. Mutual Security Agency. MSA dollar aid to the Austrian industry





## EUROPE

sulfates are normally used and led to the extensive MSA program which calls for modernization and expansion of the capacity of the sulfate pulp mill, Natronzellstoff-und Papierfabriken Frantschach A.G. in the Lavant valley, which has received \$622,882 in direct dollar aid, and the construction of a new sulfate mill by Nettingsdorfer Papierfabrik A.G. The Frantschach capacity will reach 36,000 short tons by late 1953 and its kraft paper production 26,000 tons, while the Nettingsdorfer project will yield 36,000 short tons of pulp and 18,000 tons of kraft paper. This will bring Austria's total new sulfate capacity to 77,000 short tons of pulp and 44,000 short tons of paper. Part of the Frantschach expansion includes a 187-inch Bagley & Sewall Fourdrinier shipped late in 1952.

The total "Long-Term-Investment Program" under MSA calls for the increase in sulfite pulp capacity from about 260,000 to 310,000 short tons yearly, and includes installation of hydraulic debarking plants, new chippers and chip screens, and 20 new digesters, 12 as replacements. The program calls for production of dissolving pulps as well as for unbleached and bleached sulfites, so it is expected to turn Austria into an exporter of practically all grades of both pulp and paper.

**Paper:** Continued investments in modernization and expansion of the Austrian industry are expected to achieve a paper-making capacity of 385,000 short tons annually. Twelve new paper machines were called for in the program and the modernization of 15 old machines. Over 50% of the program was completed by 1952, and included in the new machines was a 228-inch Bagley & Sewall Fourdrinier shipped to Murztaler Holzstoff and Papier Fabrik Aktiengesellschaft during the year. It is expected paper production may reach 330,000 short tons during the current year.

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every mill

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capable of producing up  
to 100 tons of high grade  
pulp per day.

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quality pulp for  
mills making products  
ranging from board to  
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## PULP and PAPER AUSTRIA—(Short Tons)

	Paper	Board	Mechanical Pulp	Chemical Pulp
1937:				
Production	255,890	70,670	106,683	294,963
Consumption	126,677	34,619	85,970	135,100
1948:				
Production	208,811	50,405	76,743	172,607
Consumption	130,383	41,098	77,564	128,772
1950:				
Production	263,338	65,086	102,905	275,666
Consumption	139,724	51,714	97,139	171,776
1951:				
Production	287,433	74,558	116,270	209,950
Consumption	153,615	55,836	110,001	197,125
Exports	134,244	18,777	6,106	97,724
1952:				
Production	276,875	70,084	101,443	285,732
Consumption	142,644	50,497	102,796	189,009
Export	134,231	19,587	5,234	90,699

## AUSTRIA—PAPER (In Short Tons)

	Book and Writing	Kraft Paper	Other Paper Grades
1937:			
Production	70,762	121,653	63,475
Consumption	30,034	42,292	54,351
1948:			
Production	70,929	69,865	17,064
Consumption	31,536	49,040	12,480
1950:			
Production	78,494	101,892	15,189
Consumption	30,362	50,240	14,399
1951:			
Production	64,007	110,077	14,564
Consumption	31,768	56,496	14,792
1952:			
Production	82,055	109,628	85,212
Consumption	27,869	57,925	56,850

Note—Exports are the difference between production and consumption—which is, actually, apparent consumption.

## AUSTRIA—CHEMICAL PULPS (Short Tons)

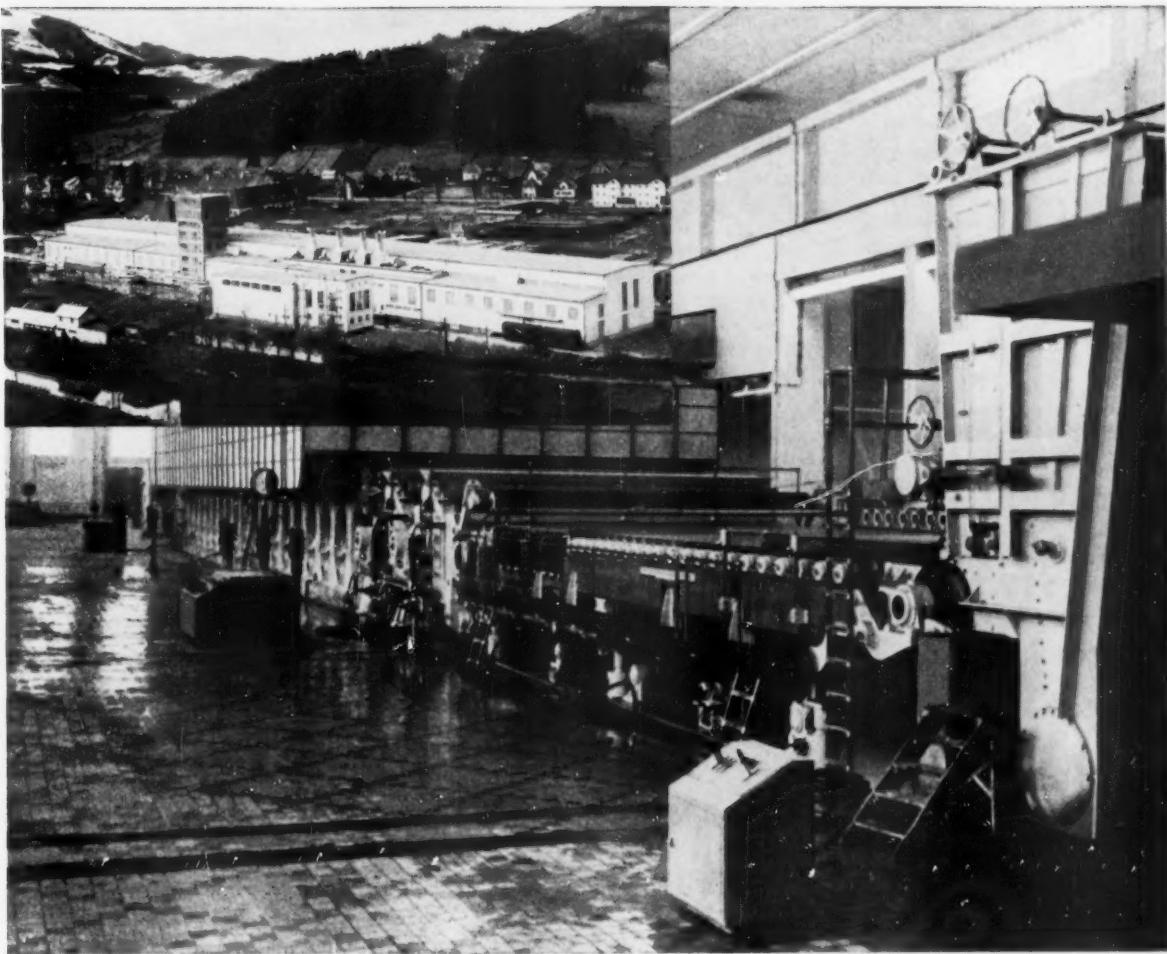
	Sulfite Unbleached	Sulfite Bleached	Kraft Unbleached	Dissolving
1937:				
Production	151,715	118,243	25,025	
Consumption	79,391	41,068	14,641	
1948:				
Production	86,128	47,072	15,974	23,433
Consumption	63,816	36,733	13,679	14,544
1950:				
Production	104,914	104,690	23,870	42,192
Consumption	67,857	56,672	16,969	30,279
1951:				
Production	111,770	103,774	25,885	58,711
Consumption	66,319	75,493	14,817	40,480
1952:				
Production	118,477	91,031	25,076	48,947
Consumption	73,377	72,271	14,984	36,377

Note—Exports are the difference between production and consumption, which is, actually, apparent consumption.

at the Arland Paper Co., in Graz. This company expects to triple its daily output of paper following completion of its modernization and expansion program in 1953, which includes operation of a new general purpose paper machine. The new machine features a fully modern removable-type non-corrosive Fourdrinier and Sandy Hill Bertrams flow control unit designed and built in the United States by The Sandy Hill Iron & Brass Works. This machine is now producing fine quality writing and printing papers and it is expected to produce glassine after completion of a new stock preparation system.

**Paperboard:** Of the seven new machines planned for the paperboard industry, five were installed by the end of 1952. By the end of the current year plant capacity is expected to reach 97,000 short tons compared with the 1948 capacity of 77,000 tons.

**Exports and Markets:** In 1952 Austrian pulp and paper manufacturers experienced a break in both their export and domestic markets, and their increasing



This is the most recent of Bagley & Sewall productions, designed, built and installed for the Murztaler Holzstoff-und-Papier-Fabriks A.G. in the city of Bruck/Mur, Austria, one of Europe's finest and most modern paper mills.

This fourdrinier machine has a wire width of 226 inches and length of 100 feet. Outstanding in design features, from the remote control system to the many engineering innovations throughout the various machine sections, it is one of the most modern papermaking machines in the world, today. Another B & S paper machine designed for efficient and economical manufacture of paper.

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## EUROPE

capacities point to the need for new outlets. Austrian pulp exports dropped from a high of 129,000 short tons in 1950 to 115,000 tons in 1951, and the total of 64,200 short tons for the first three quarters of 1952 indicated a further and sharper drop for that year. Paper exports reached a high of 141,000 short tons in 1951 but were due for a fall with 90,000 short tons for the first three quarters of 1952.

The principal export customers for pulp have been Italy, Germany, France, Switzerland and Great Britain, in that order, and for paper have been Great Britain, German, Portugal and Turkey.

## ITALY

### New Highs Reached

(Italy's 48,000,000 people use an average of 22 pounds of paper per person per year.)



GUGLIELMO TURINI,  
President of Association  
of Paper Mfrs., Rome,  
and Gen. Mgr., Cartiere  
Miliani di Fabriano, who  
again provided informa-  
tion in Italy's industry.

PAPER AND PAPERBOARD production reached new highs in Italy during 1952 with 649,805 short tons produced, as compared with 630,546 in 1951, and with 528,036 tons in pre-war 1938. This increase was achieved in spite of a drop in woodpulp production of over 7,000 tons. The woodpulp production was 300,037 short tons, as compared with 307,629 in 1951, and 192,776 during the year 1938.

A goal sought but not achieved during 1952 was the building of newsprint production to the point of requirements. Although newsprint production was raised almost 8,000 tons over 1951 to a total of 123,503, requirements during the period increased over 12,000 tons so that the country still had a newsprint deficit. The goal for 1953 is to bring newsprint production to 131,000 tons and thus transform Italy to an exporter of this product.

Production capacity for Italy as estimated by Guglielmo Turini, general manager of Cartiere Miliani di Fabriano and president of Association of Paper Manufacturers of Rome, is as follows:

	Tons
Newsprint	132,000
Kraft Paper	60,500
All Other	577,500
Mr. Turini says there are 36 mechanical	

woodpulp producers in Italy; and 21 chemical woodpulp producers. There are 15 companies now making chemical pulp from straw, which has been a significant development in its efforts to make up for pulpwood deficits and to become self-sustaining in pulp production.

Hardwood utilization is also significant in Italy with five firms prominent in the development of processes for manufacture of newsprint from poplar. These include: Cartiere Burgo; Cartiere Donzelli; Cartiere Meridionali; Cartiere Boimond; and Cartiere Triburtine e Ind. Affini. Cartiere Burgo last year placed in operation a Sandy Hill Fourdrinier newsprint machine which has accounted for much of the increased production in Italy.

Part of the modernization program in Italy during 1952 included the installation of three Shartle No. 4-A Miami jordans and one Shartle-Dilts Hydrapulper at the plant of Cartiere di Verona at Milano, as well as additional equipment for filler system in stock preparation.

## ITALY—WOODPULP

(Short Tons)

Dis-	Chemical Pulp	Total
solving	Paper & Board	Mechanical
1937	0	31,010
1940	17,958	161,766
1947	17,613	192,776
1949	47,829	106,288
1950	48,141	164,859
1951	58,986	119,213
1952	57,332	140,873
		226,811
		249,310
		307,629
		300,037
		155,278
		156,726

## ITALY—PAPER PRODUCED

(In Short Tons)

Pro-	Newsprint	Kraft Paper		Other Paper	
		Con-	Pro-	Con-	Pro-
duced	sumed	duced	sumed	duced	sumed
1938	82,687	84,362	31,972	32,028	413,437
1950	94,705	98,233	44,100	45,203	411,182
1951	115,270	117,758	60,406	65,492	396,900
1952	123,503	129,897	58,973	63,272	410,792
					454,870
					408,574
					467,329
					458,731

## GREECE

### Builds New Mill

(Greece's 9,000,000 people use an average of 16 lbs. of paper per person per year.)

A STRAW PULP MILL, first of its kind in Greece, will produce a new domestic papermaking pulp for this country by late 1954, according to exclusive word received by this WORLD REVIEW NUMBER from Athens. It is already under construction at Larissa, Thessaly.

The U.S.A. Mutual Security Agency in June 1951 granted \$600,000 for this purpose and the Greek government has authorized an additional 4,000,000,000 drachmas.

The company building the mill is Ebex Ltd., a group of capitalists. Capacity will be about 10,000 metric tons (11,000 short tons).

Alexander Schnee, acting chief of the Economic Section, American Embassy, Athens, writes:

"Greece has negligible forest resources and consequently there is no local production of woodpulp to supply the Greek paper industry. Waste paper and rags are used. No large scale development can be accomplished unless more local raw ma-

## GREECE

(In Thousands of Short Tons)

	Paper Produced	Wood Pulp Imported
1937	34	26
1946	13	13
1949	32	25
1950	38	33
1951	43	37
1952	36	18

terials can be obtained. The straw pulp mill is a step in that direction."

There had been reports two years ago of a woodpulp mill based on a reported 10 million cu. ft. annual supply, two-third hardwoods, but Mr. Schnee's report indicates nothing came of this.

## DENMARK

### More Modernization

(Denmark's 4,300,000 person use an average of 130 lbs of paper per person.)

LITTLE DENMARK's modernization of paper and board mills is continuing despite the fact that its paper production fell off slightly in 1952 after several years of showing successive increases. However board production, and also groundwood—the only pulp made—increased. Demand was again strong in 1953.

United Paper Mills (De Forenede Papirfabrikker) make about 90 percent of all paper in Denmark. It operates half of the dozen or so mills. First newsprint was made in 1949 and last reports were a straw cellulose plant was being built with aid of U.S. funds.

From L. C. Carlson, director of United Paper Mills, and through the good office of Frits Madsen, now with B-C International (Black-Clawson subsidiary) in London, Eng., but a former superintendent of United's Ny Maglemolle Mill, Denmark, PULP & PAPER is able to present a fresh report on this country.

There were some minor shutdowns of machines and even some mills in 1952, as in other European countries. The price of raw materials dropped sharply in the first quarter. As was inevitable, the prices of paper decreased. In fact, there were three reductions. At the end of 1952 they were 40 percent below the summer of 1951. In the previous year they had not advanced as rapidly as raw materials prices.

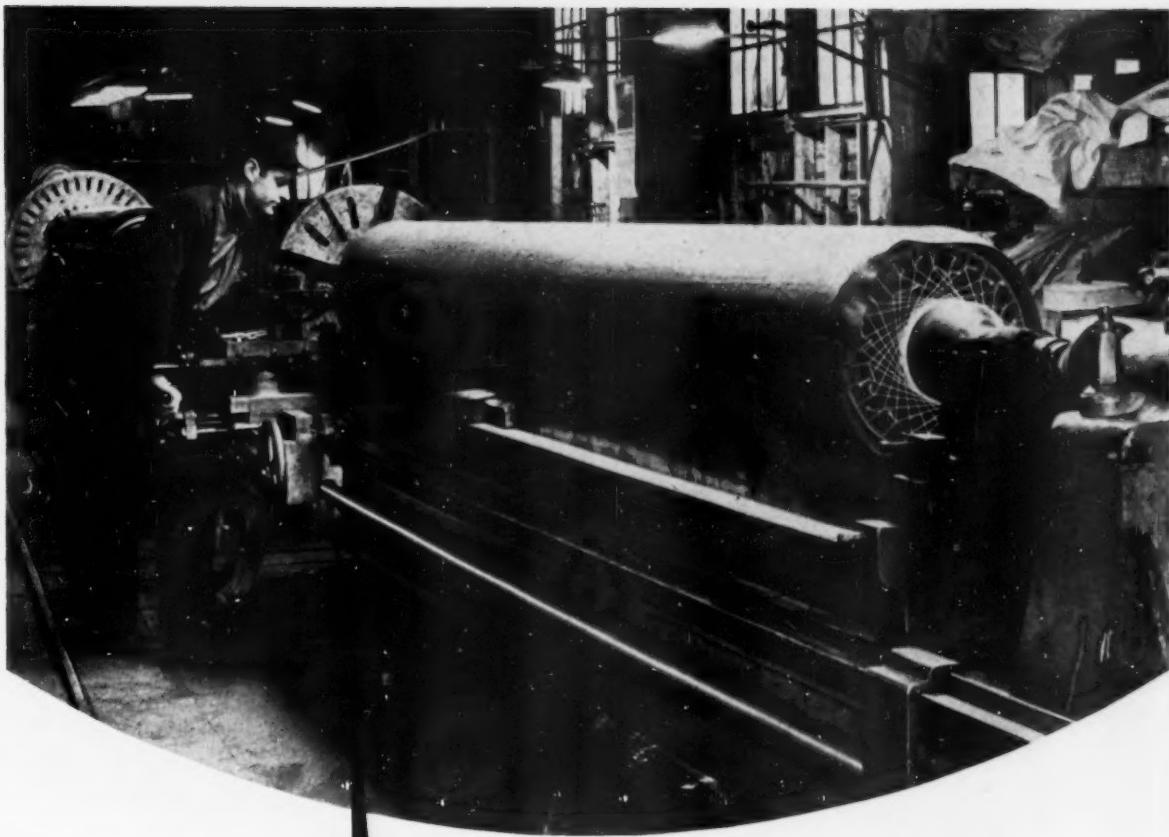
But at the end of 1952, the demand for paper in Denmark was again ahead of production, and it was necessary to cut down inventory. Imports of grades now made in Denmark decreased particularly during 1952. Rebuilding of paper machines and installation of new stock preparation systems were important modernization steps.

## DENMARK—PRODUCTION

(In Short Tons)

	Mech. Pulp	Paper	Paperboard
1939	570	70,000	11,000
1947	120	78,000	19,000
1950	950	91,296	23,507
1951	908	98,933	15,235
1952	2,120	96,000	18,610

1953 Review Number



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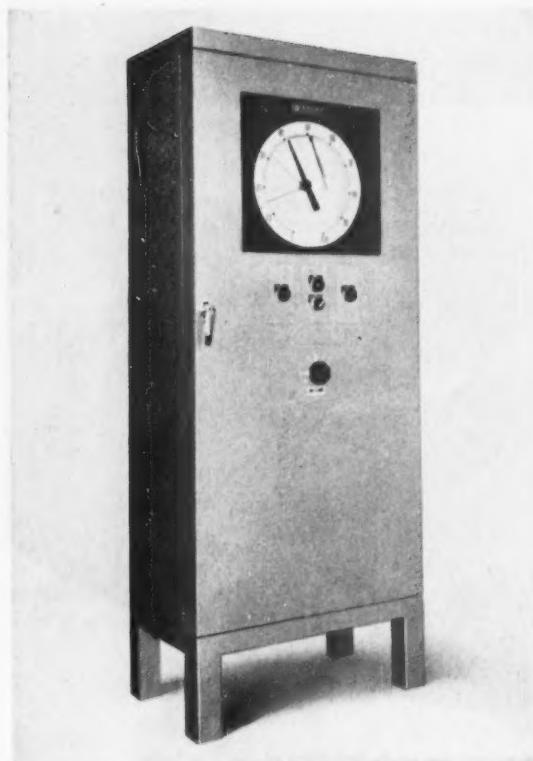
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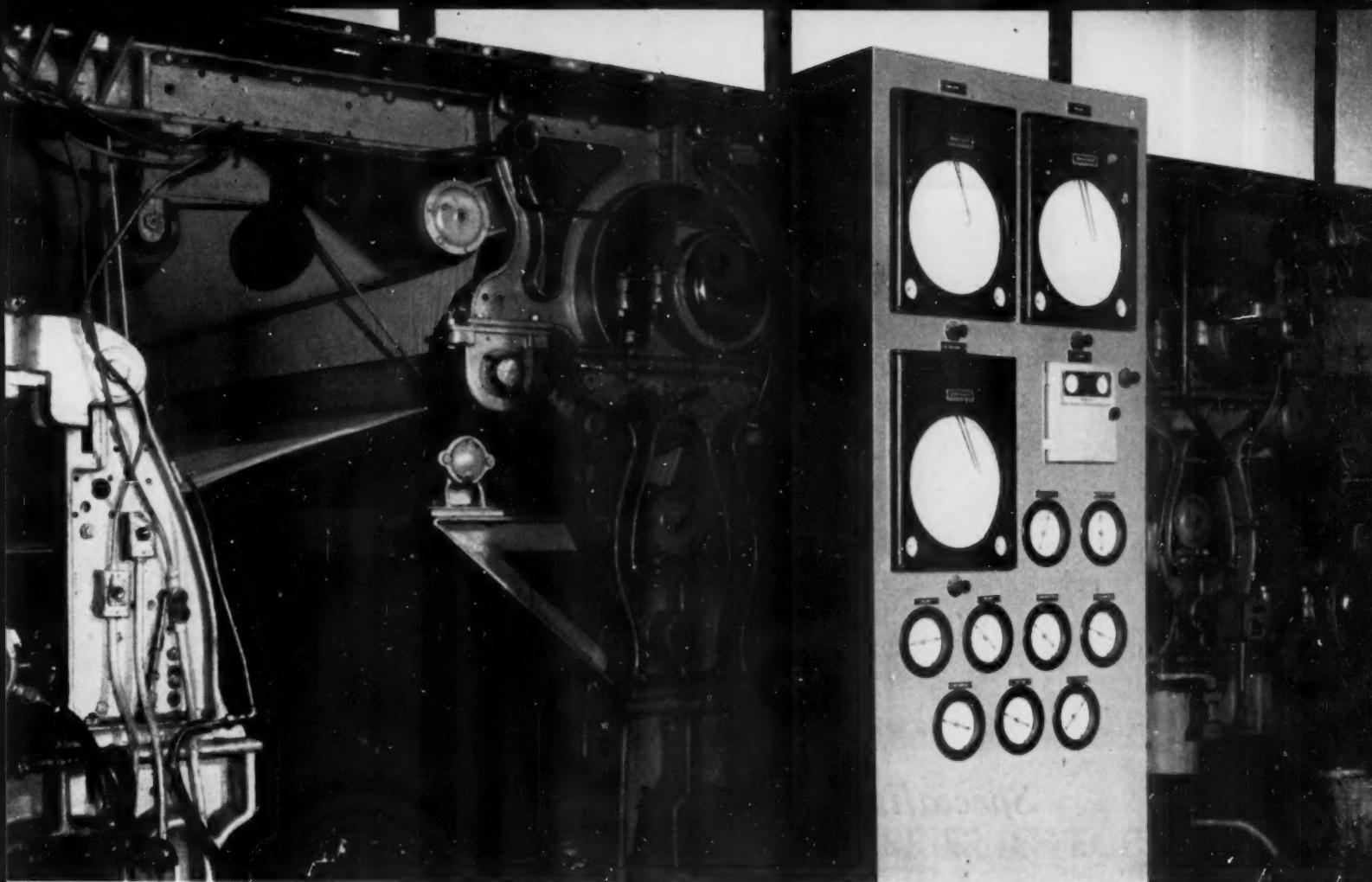
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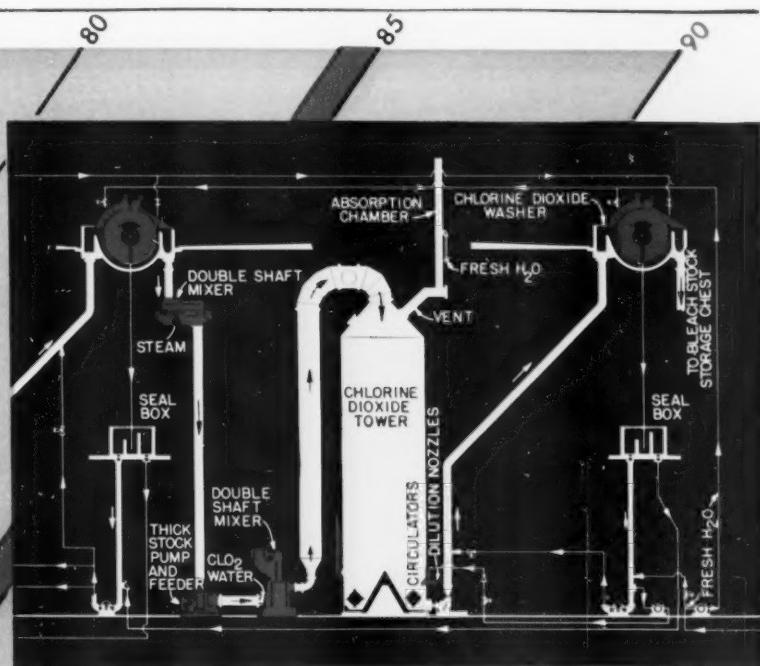
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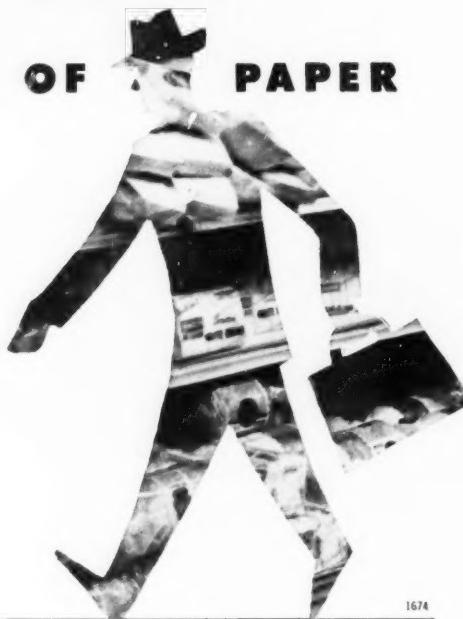


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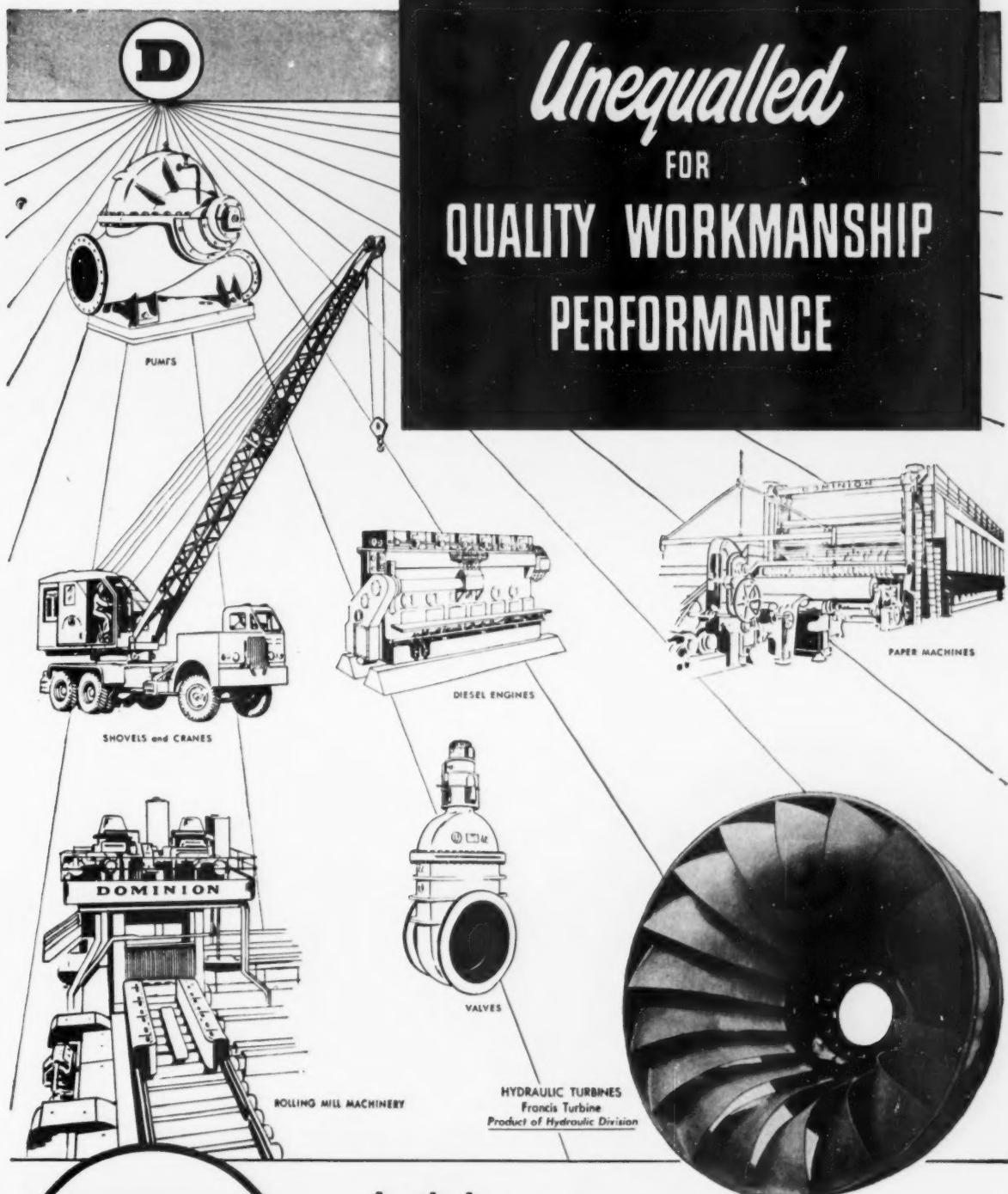
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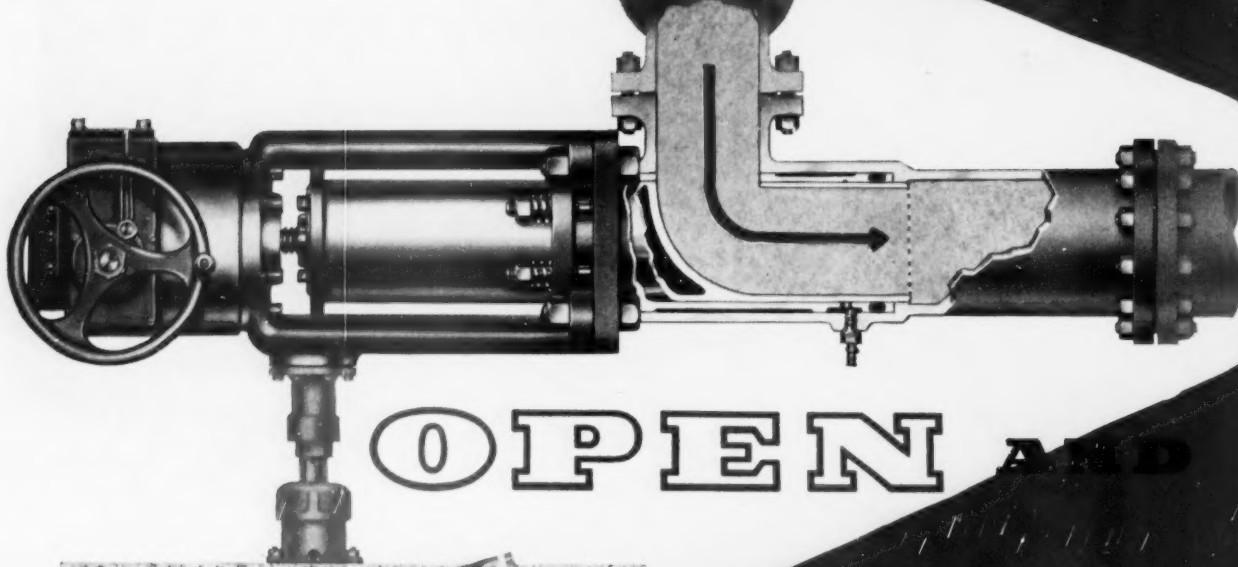
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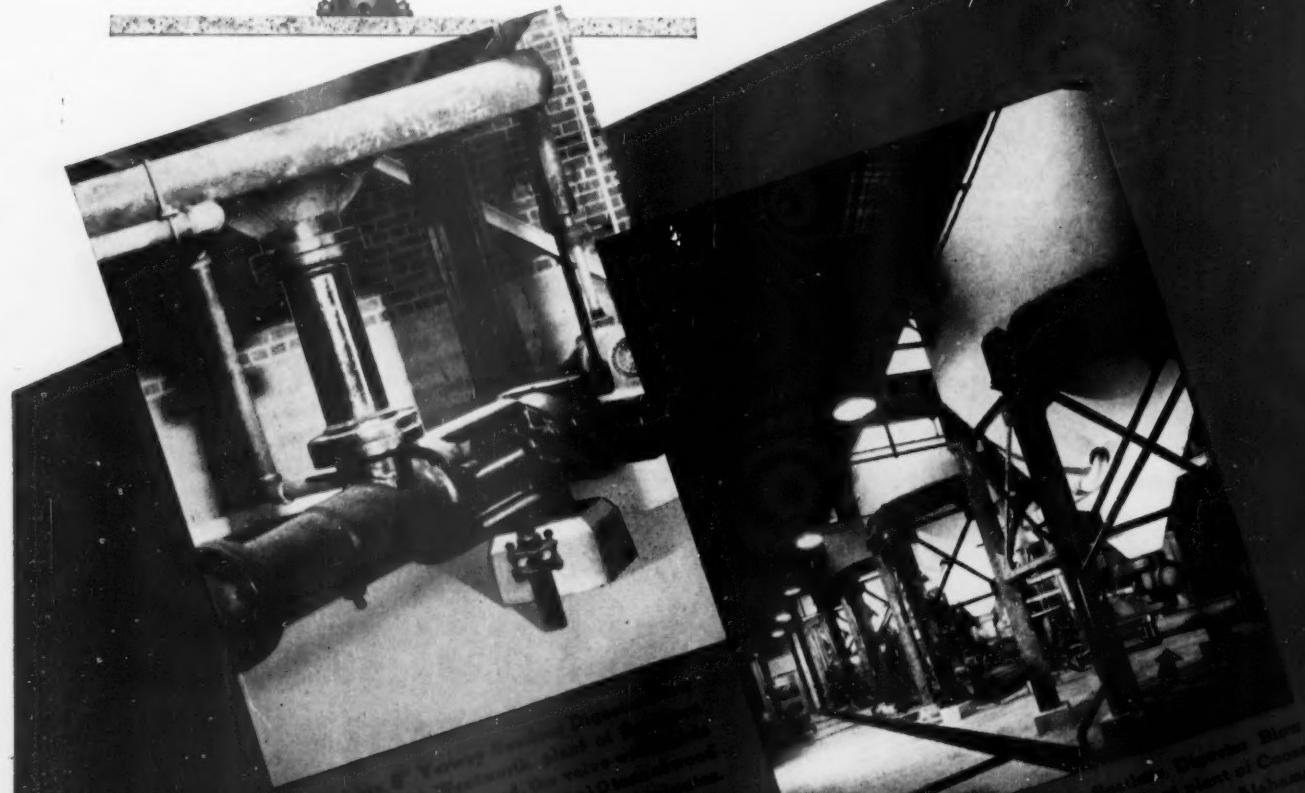


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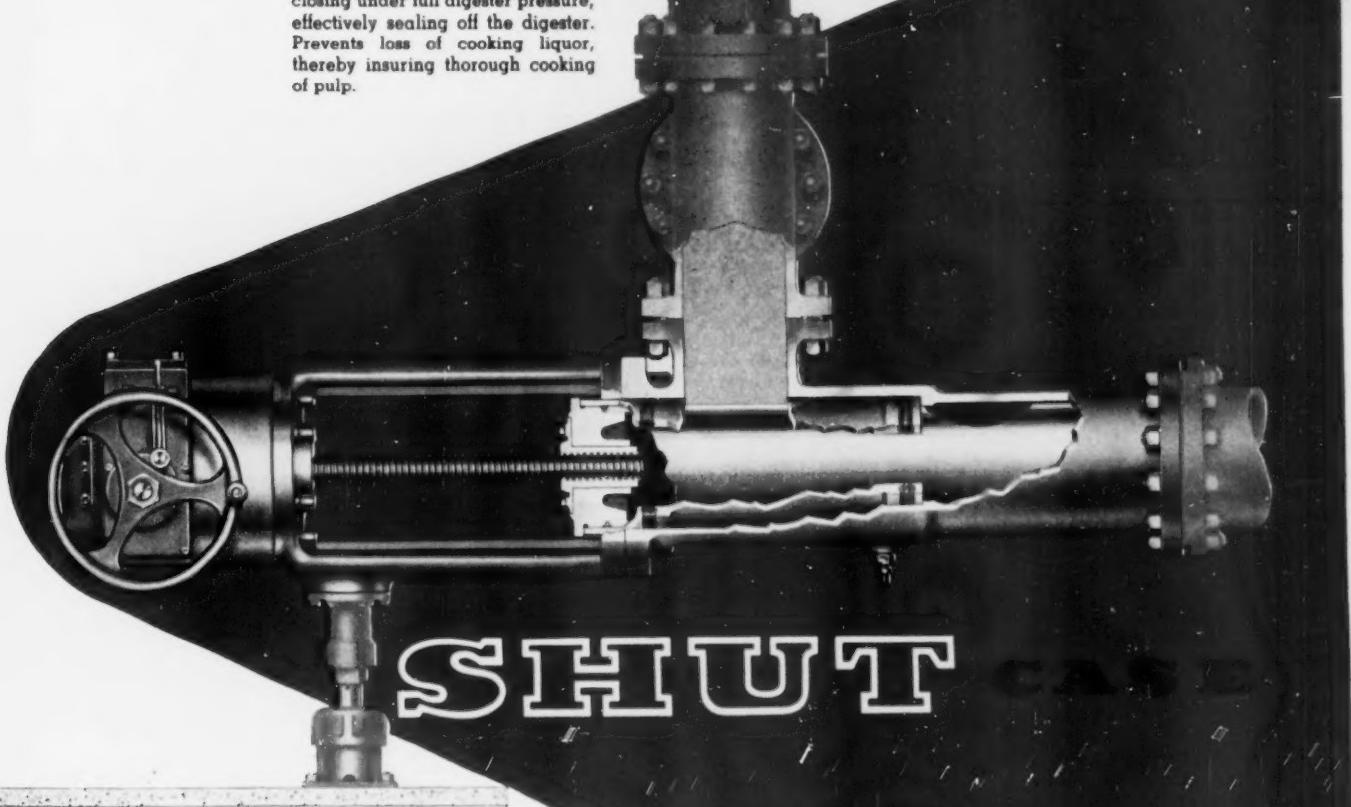


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One of the largest  
Valves at the present time  
Perry and Corp. Chicago  
1000 psi pressure. A valve of  
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**TIGHT SHUT-OFF:** Here the sliding plunger design insures tight closing under full digester pressure, effectively sealing off the digester. Prevents loss of cooking liquor, thereby insuring thorough cooking of pulp.



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**FOR**

# **YARWAY**

## **DIGESTER BLOW VALVES**

These two cross-section views of the Yarway Seatless Digester Blow Valve, in open and closed positions show two good reasons (free discharge and tight shut-off) why Yarway Valves are being used on more and more pulp digesters.

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**FAST OPERATION**—by remote push button control, these motor-operated valves speed digester discharge . . . in one typical mill, resulted in

an increase of 20 tons of pulp a day.

**RUGGED CONSTRUCTION**—built to withstand the shock and wear of toughest service. Frequently take up to 6000 blows before reconditioning.

**MODERN METALLURGY**—such as lower gland (sleeve) of chromium nickel stainless steel and sliding plunger of hardened stainless steel—resists wear and chemical action.

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## ASIA

### JAPAN Completes Recovery

(Japan's 85,000,000 people use an average of 34.4 lbs. of paper per person per year.)

**THE AMAZING RECOVERY** against adversities of Japan's pulp and paper industry is revealed this year. Data received from PULP & PAPER's correspondents show that woodpulp production in 1952 was practically restored back to highest levels of pre-war years. The 1,366,000 tons made in 1952 was 97 percent of the 1941 peak. Paper production of 1,480,000 tons was up to 87 percent of 1940, pre-war peak year. But by the end of 1952, monthly records were higher than ever before.

One of the events of the year was startup of a new kraft dissolving pulp mill at Yonago (see picture), built by Nippon Pulp Co., using Japanese red pine. Harold Cavin, chief engineer for the Ketchikan Pulp Co., whose headquarters are in Bellingham, Wash., and Stadler, Hurter & Co., Montreal, both did engineering and layout work for this new mill. It started up in Dec. 1952 on paper pulp but changed over early in the year to bleached kraft for dissolving.

Also, there was started up in Aug. 1952 a new 120 in. newsprint machine at Fuji Mill of Honshu Paper Mfg. Co.

In Kokusaku mill, Yokohama, a 90-ton refining system, later to go to 130 tons a day kraft bag stock, was installed in recent months with Shartle Bros. Hydrafiners and other equipment, and another Shartle Hydrapulper-Hydrafiner plant for Honshu Paper Co. went in early last year.

**GENERAL VIEW** (left) of NIPPON PULP INDUSTRY CO.'s new mill at Yonago, Japan, which started up in Dec. 1952, making 80 tons per day of dissolving bleached kraft pulp, according to word from T. Ota, Vice President. Harold Cavin, Chief Engineer for Ketchikan (Alaska) Pulp Co., and Stadler, Hurter & Co., Montreal, were consultants. Red pine is used.

### Industry Keeps Growing in Several Asiatic Countries; Japan's Recovery Near Complete; India Builds Mills

Another extensive modernization and expansion project in Japan was completed in late 1952—the Gotsu Mill of Sanyo Pulp Co., which made this company one of the two largest rayon pulp producers in the country with 25 percent of national capacity in that grade. Meder Johnson, Seattle engineer and former Rayonier chief engineer, was consultant on this work.

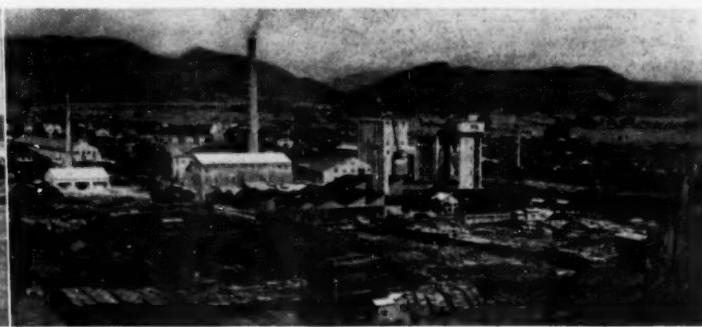
The Gotsu mill, which Sanyo acquired from Shimane Chemical Co., in 1941, makes 35,000 tons annually.

Sanyo's other mill, Iwakuni, is near atom bombed Hiroshima, where capacities have been increased to about 60,000 tons of rayon pulp, 20,000 tons of paper sulfite pulp and 21,000,000 lbs. of printing papers. Reconstruction at Iwakuni was completed since the war. Chikayuke Inoue, general manager, wrote that the red pine used is similar to Southern pine. He said the mill is building a sulfite waste liquor alcohol plant and now sells San-Sul-X, a condensed waste liquor.

A high density system designed by Mr. Johnson was instrumental in helping to effect a considerable increase in this mill's pulp output. The mill has two 142 in. Fourdriniers for pulp. The paper mill was expanded with a new 142 in. Fourdrinier machine starting up last year, making three paper machines in all, and doubling paper production.

The new Saeki high alpha sulfite pulp mill of Kokoku Rayon & Pulp Co., Ltd. started up production at the rate of 22,000 tons per year in April, 1953. The product is for acetate mainly, but also for high tenacity rayon and celluloid. The company announcement said acetate's main raw material now is woodpulp instead of cotton linters. This company, founded in 1937, with main offices in Tokyo, built the Saeki mill for that reason. It has another woodpulp mill, a printing

**BIRD'S EYE VIEW** (right) of FUJI MILL of HONSHU PAPER MFG. CO., LTD., which started up a new 120 Inch Newsprint Machine in Aug. 1952. This mill has seven paper machines, four sulfite digesters and three grinders. Newsprint increase in Japan has been spectacular in past year, according to Yoshio Ichakawa, Executive Director of Honshu Paper Mfg. Co.



### JAPAN—PULP PRODUCTION

*In Thousands of Short Tons*

	Sulfite (Rayon)	Sulfite (Paper)	Sul- fate	Oth'r Chem.	Grind Wood	Tot'l
1938	113	444	69	3	419	1,050
1941	326	418	84	117	463	1,410
1949	50	188	33	8	314	595
1950	111	230	64	34	386	824
1951	190	304	100	85	516	1,195
1952	205	398	158	58	549	1,366

### JAPAN—PAPER PRODUCTION, IMPORTS, EXPORTS, CONSUMPTION

*(In thousands of short tons;  
except per capita figures in lbs.)*

	Pro- duced	Imports	Exports	Consumed Total	Capita
1937 <sup>1</sup>	1,600	70	135	1,535	43
1946 <sup>2</sup>	231	—	2	229	6
1949	695	12	6	701	17
1950	962	0.1	22	941	23
1951	1,286	1	48	1,239	29
1952	1,479	9	17	1,472	34

<sup>1</sup> Highest in production and consumption

<sup>2</sup> Lowest in production and consumption  
Source: Ministry of International Trade & Industry.

papers mill, and rayon textile, spinning and rayon staple mills.

From Mr. Johnson and Mr. Inoue, PULP & PAPER received pictures of this mill shown on these pages.

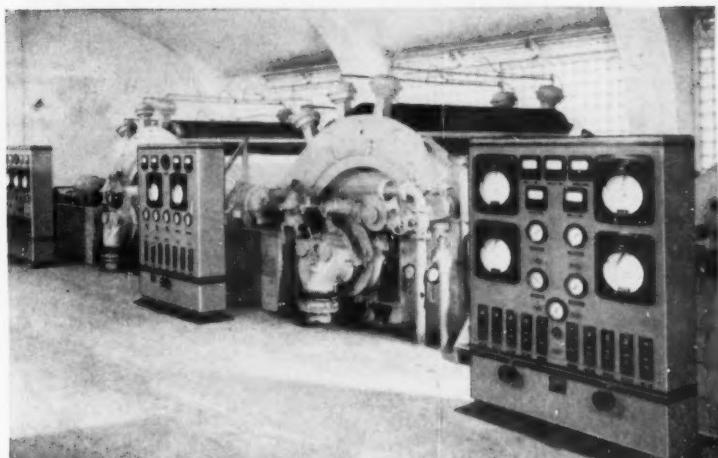
Sumner Iron Works, Everett, Wash., has supplied five 72-in. chippers and chip screens to the Sanyo mills and others.

Here follows a report of year's progress in Japan written especially for this issue by Mr. Ichakawa of Honshu Paper Co., who also prepared the tables shown:

### By YOSHIO ICHAKAWA

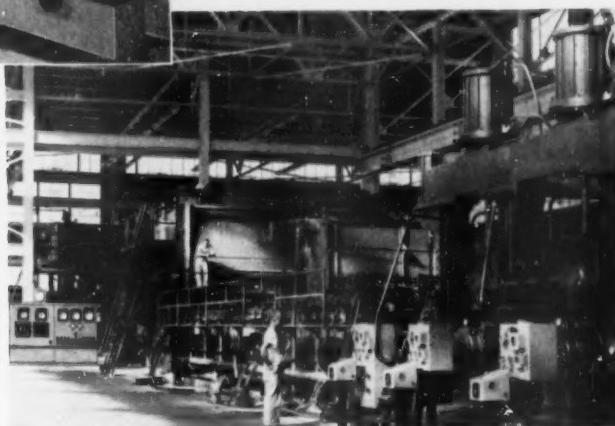
Executive Director, Honshu Paper Mfg. Co.

Japan produced 1,366,000 short tons of woodpulp in 1952 as compared with 1,195,-



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speed motor, gears or galvanometer. Maintenance is eliminated, except for occasional replacement of standard radio tubes. Available in recording and recording-controlling models.

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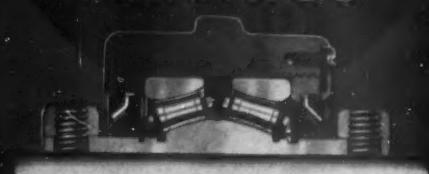
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Two great mills, pro-  
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pulp, provide a reliable open market  
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contribute to the popularity of these products  
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Rail and deep sea facilities at both mills.

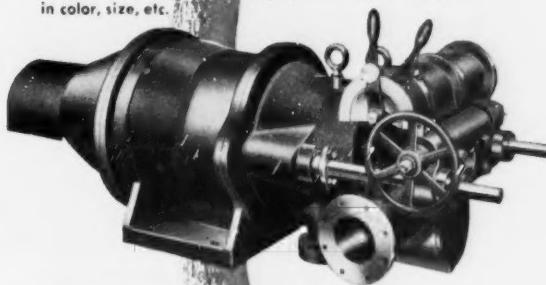
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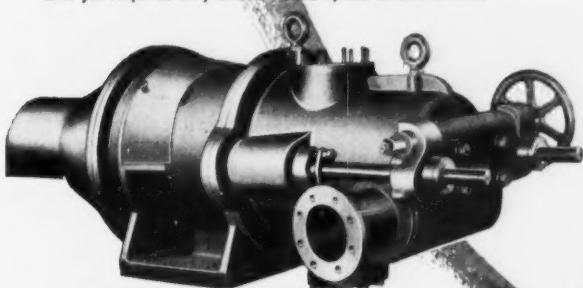
#### MORDEN "SLUSH-MAKER" FOR PULPING

The "Slush-Maker's" side-mounted rotor quickly and efficiently slushes a full charge of pulp, broke or waste paper, either batch or continuous. The rotor's combination pumping, shredding and brushing blades continually direct the charge at right angles against the attritioning ring, where a controlled bar-to-bar brushing completely clears all flakes and bundles; thus high wet strength, without damage to the fibers. The "Slush-Maker's" positive-flow circulation quickly and thoroughly mixes and also brushes in color, size, etc.



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## YOUR STOCK PREPARATION

WITH Morden { SLUSH-MAKERS  
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Experience with nearly 700 Morden Machines in 175 mills on all types of pulp and grades of paper proves that:

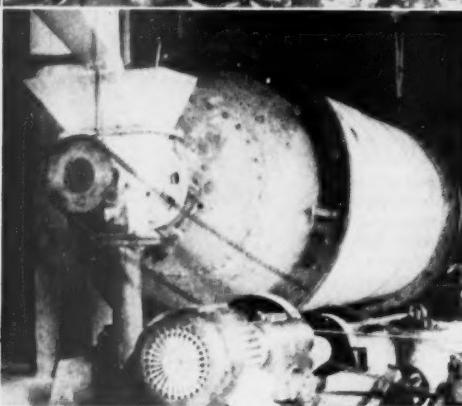
These three Morden Machines are especially designed, each to excel in one of the three phases of stock preparation—pulping, beating or jordaning.

Each of these Morden Machines is engineered for the utmost in efficiency, simplicity, versatility and economy of operation.

These Morden Machines are designed to fit readily into all types of stock preparation systems and can be used together or in combination with existing equipment to give efficiently the various treatments required for developing the most in each furnish.

Let us know of your interest, and we will gladly provide detailed information on how to advantageously Morden-ize your stock preparation system.





000 short tons produced in 1951. This was a record high since the end of the war, and was about 97 per cent of the pre-war peak achieved in 1941. The total consumption of woodpulp in 1952 amounted to 1,423,000 short tons, of which the domestic pulp constituted 1,367,000 short tons, the rest of 56,000 short tons being met by the imported pulp. This is compared with 92,000 short tons of imported pulp consumed in 1951.

Paper production in 1952 also showed a post-war record high of 1,480,000 short tons including all styles of paper and board. This was an increase of 15 per cent over the production of 1,286,000 short tons in 1951, and was about 87 per cent of the peak production reached in 1940.

One of the developments in 1952 was a remarkable increase in the production of newsprint, namely, an increase of approximately 40 per cent over 1951. The increased production was mainly attributable to the installations of new machines by various manufacturers. It is estimated that about 40 new Fourdrinier machines started operations during the year of 1952, newsprint machines constituting nearly half of them. Production of newsprint thus increased is being absorbed by daily newspapers which are gradually increasing their pages. It is expected that the newsprint production will further increase in 1953 owing to the ever stronger demand for newspapers.

Besides the newsprint, there has been a marked increase in the production of wrapping papers and board since October, 1952. This trend will be accelerated in 1953 due to the ever stronger demand for these grades. Thus, the total production of paper and board in 1953 is anticipated to exceed 1,700,000 short tons. The supply to this extent would probably be ab-

**SCENES FROM SANYO PULP CO.**, in Japan, where Meder Johnson, James Brinkley Co., Seattle, served as consulting engineer for dissolving pulp expansion. Top left: Digester building and accumulators. Top right: Red pine, which has a hard inner bark, must be cleaned up after it leaves the barkers and in many mills this work is done by women. Lower left: Acid plant and acid tower. Lower right: Sulfur burner.



**NEW 120-INCH NEWSPRINT MACHINE** which started up in Aug. 1952 at Fuji Mill of Japan's Honshu Paper Mfg. Co. Ltd.

#### JAPAN—WOODPULP CONSUMPTION

(In thousands of short tons)

	Pro- duced	Do- mestic	Im- ported	Consumed Total
1951:				
In Paper	1,005	1,098	45	1,143
Non-paper (rayon, etc.)	190	164	47	211
Total	1,195	1,262	92	1,354
1952:				
In Paper	1,161	1,186	14	1,200
Non-paper (rayon, etc.)	205	181	42	223
Total	1,366	1,367	56	1,423

Source: Ministry of International Trade & Industry.

sorbed in the domestic markets with not much difficulty, in view of the increasing demand for newsprint, wrapping papers, board, etc., as mentioned above. The problem, however, is the rising cost of raw materials, especially pulpwood. It is becoming more and more difficult to pass the high cost over to consumers by hiking the selling prices. It is considered that such situation will eventually lead, in the near future, to the liquidation of some of the small and financially weak firms or absorption of such firms by powerful concerns.

There is a criticism that the industry has put too much emphasis on the expansion of facilities during the year of 1952. Now it is seriously considered that 1953 must be the period for rationalization.

In conclusion, Japan's pulp and paper industry, which has continued to expand since the end of the war, is now confronted with two major problems: (1) how to improve the quality and, at the same time, reduce the cost so as to stimulate the demand both in domestic and overseas markets, (2) how to solve the pulpwood problem in view of the heavy drain on the limited resources of wood, especially soft-wood. These difficulties will have to be settled in some way or other, if the industry is to make a healthy development in the future. Fundamentally, however, the strengthening of Japan's economy is imperative. Such basic and inter-related problems as development of hydro-power sources, cost reduction of coal and streamlining of tax system will have to be solved as early as possible through combined efforts of the Government and private concerns.

#### JAPAN—PAPER PRODUCTION

(In Short Tons)

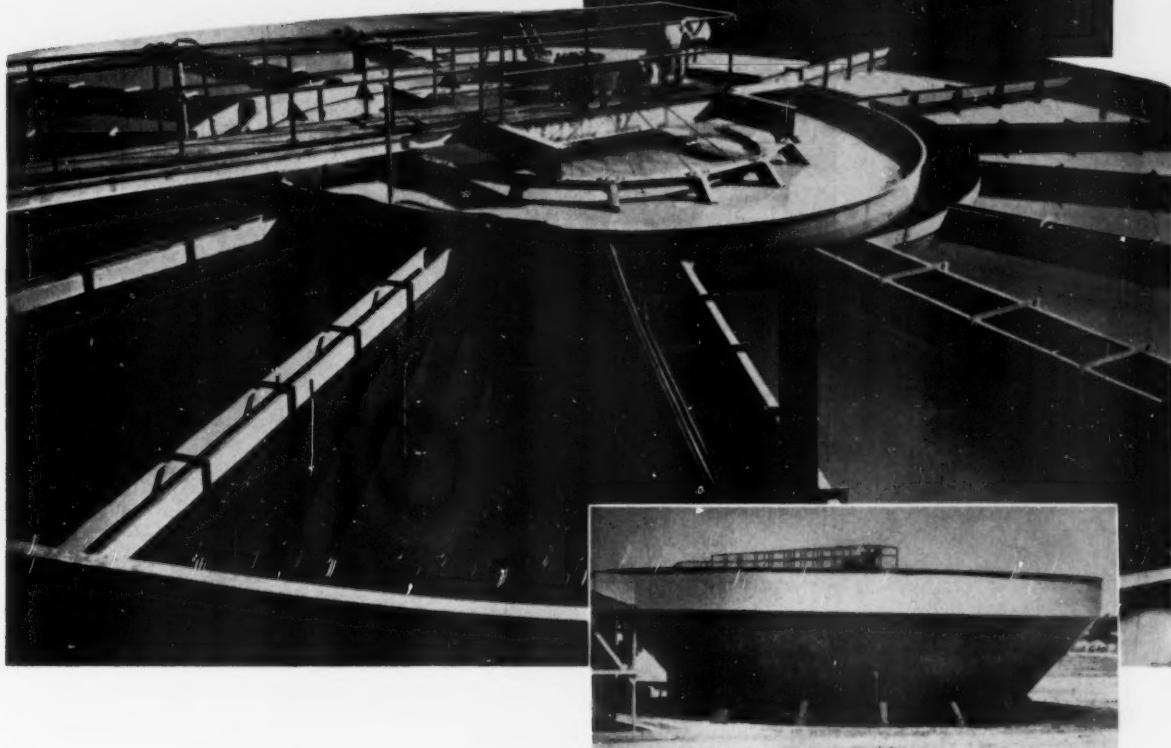
Foreign-Style Paper:	1941	1949	1951	1952
(Total)	1,031,854	419,437	779,981	923,710
Printing	421,470	176,482	329,177	368,890
Newsprint	294,234	119,775	219,856	307,265
Writing,				
Drawing	29,911	10,947	20,901	25,239
Wrapping	214,564	61,086	137,164	142,159
Cigaret	7,606	4,382	4,927	4,746
Miscel.	64,069	46,765	67,956	75,411
Board (Total)	407,591	129,972	305,213	355,790
Japanese-Style				
Paper (Total)	229,320	146,480	201,761	200,305
Total	1,668,765	695,889	1,286,955	1,479,805

Source—Ministry of International Trade and Industry.

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that highest quality  
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lowest installed cost!



PROCESS WATER of highest quality (low color, iron and alkalinity) was the requirement of this paper mill... regardless of changes in raw water. In addition, space and installed cost were important considerations.

On all of these counts — uniform effluent quality, installed cost, and space savings — the Accelerator secured the job, just as it has on many other installations. (Accelerators are treating more than one billion gallons per day!)

Space and installation economies are illustrated in the photographs above. Note how the Accelerator tank is shaped for simple support on concrete pad and buttresses. This meant savings in installation costs. Space savings are evident when you consider that this *single tank* combines mixing, coagulation and clarification and can treat 10 million gallons per day!

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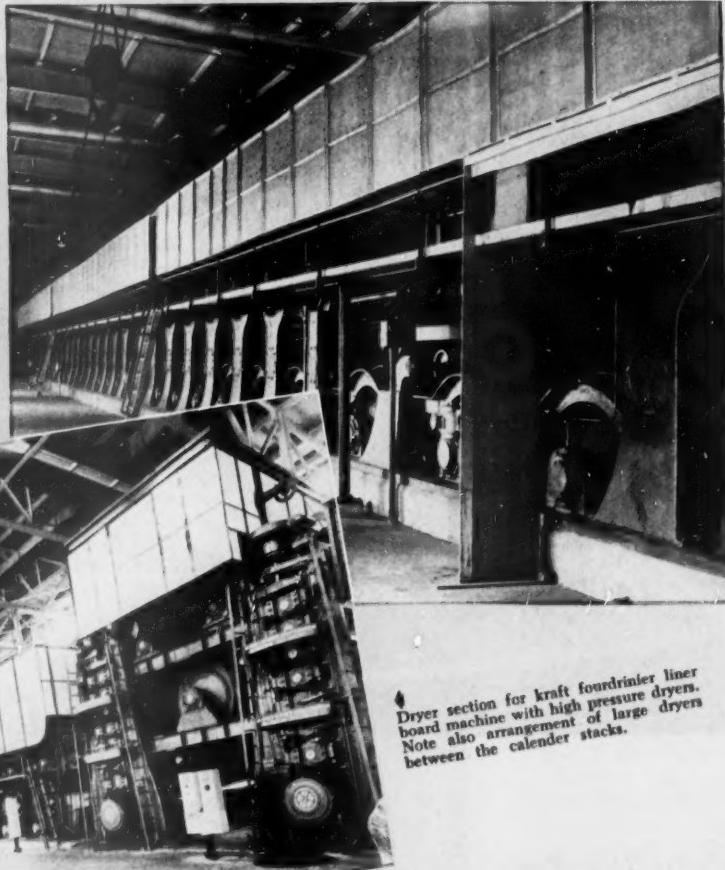
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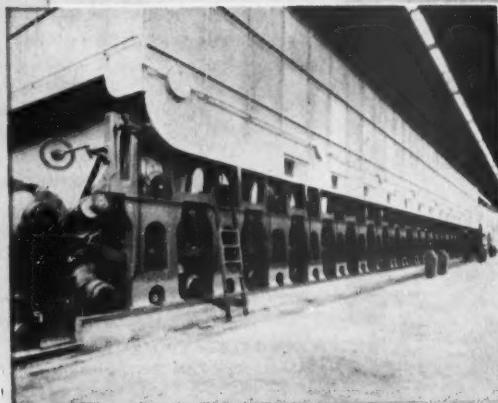
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Dryer section for kraft fourdrinier liner board machine with high pressure dryers. Note also arrangement of large dryers between the calender stacks.



Footboards are out in this modern dryer section. Ladders on tracks run the entire length of the dryer.

Inefficient dryers are slowing production, increasing maintenance costs in many mills. Sometimes the replacement of outmoded low pressure dryers is the answer. In several unique modernizations, the machines continued to turn out paper by isolating each of the dryer sections in turn while the maintenance and operating crews made the change-over.

Puseyjones engineers will be glad to show you the latest developments in efficient, high-speed dryer sections. They have facts and figures to prove that modernization pays — in stepped up production, better sheet quality and a wider range of paper products. Write us today.

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ASIA

## RED CHINA

### Conflicting Reports

(Red China's 480 million people use an average of less than 2 lbs. of paper per person per year.)

ONLY TRICKLINGS OF information comes from Communist China or from Moscow, about this vast area, as regards pulp and paper mill developments.

Most of the paper mills in this country are in Northeast China and in Shanghai and it is said that about half are government-owned and half still privately-owned. But there are hundreds of little mills of very low production, and only a few would reach 50 tons daily.

In Red China, recent reliable estimates were that there was one copy of a newspaper for every 100 persons. If there were one for each 50 people, it would require 50 more paper mills of 100 tons capacity daily.

Last year Finland was bound by an agreement to ship \$8,000,000 in cellulose, newsprint and cardboard to China and receive exchange products from Russia. West Germany is shipping paper to China as part of a \$37,500,000 Moscow trade agreement. Poland, Czechoslovakia and Russia ship paper to China. The Chinese delegates in Moscow meetings, according to reports carried on radio, have emphasized their country's paper needs.

Rumors of greatly increased paper output in China are difficult to accept on face value, but they are repeatedly reaching the free world. Peiping radio announced the big state-owned Kwantung Paper Mill at Canton was being rebuilt to make it one of China's largest newsprint and pulp mills. Groundwood facilities are being supplied. This mill was badly damaged in recent wars in China.

A Soviet-taught bamboo pulp process is reported introduced in Szechuan province. Also Shanghai mills are reported turning out quality paper from bamboo. Some 300 mills in Fukien province are said to be using bamboo and making papers of varying qualities. There is no doubt bamboo is widely used for paper in China, but it is questionable as to what most of the results are. But one report reaching Europe is that China's paper production is two and one-half times what it was before World War II.

Papermaking machinery made in Shanghai is reported to have equipped a new mill in Kiangsi province.

China has a trade agreement to ship 10,000 tons of newsprint to Ceylon in one year, so it has paper to export, as well.

There are vast forest areas in Manchuria and some other parts of China which are potentially capable of making much paper or other forest products if scientifically developed.

Besides bamboo, the Chinese are reported using rice stalks and stems of cotton stalks for paper making. Use of chih chi tsao, a wild grass along the Yellow River, is reported to be successful, too. Of course, some of these vegetable fibers have been laboriously used for centuries in China for making crude paper and also some very good hand-made papers.

## TAIWAN

### Expansion Program

(Taiwan's 7,500,000 people use an average of 7 lbs. of paper per person per year.)

TAIWAN (FORMOSA) is expanding its paper industry. This stronghold of the Chinese Nationalist government has been carrying on improvements and building additions to its plants and this work is continuing.

In Taiwan is one of the first mills to make fine printing and writing paper from bleached bagasse pulp and the consultant on this project was Cellulose Development Corp. of England. A program of technical advice and assistance for the same company, Taiwan Pulp & Paper Co., has been carried out by Sandy Hill Iron & Brass Works, of U.S.A.

This year Dr. K. W. Fries, former technical director of one of the Wisconsin mills in U.S.A., was preparing to go to Taiwan to advise expansion.

The biggest company, Taiwan Pulp & Paper, owns three paper mills, a board mill and the bagasse pulp plant. A 2-year program to revamp and re-equip these mills at cost of \$1,200,000 is under way. The paper mills have total capacity of 14,000 tons in Taiwan now, and the bagasse plant 25,000 tons. The latter has two Fourdrinier dryers. It also has another smaller mill in Van Hwa, and studies in bamboo pulping are continuing there.

Sandy Hill sent four of its Peppy Peelers for field peeling of pulpwood to Taiwan in 1952.

Dr. Li Li, of Taiwan Trading Corp., and Taiwan Pulp & Paper Corp., through A. B. Henningsen, of Federal, Inc., U.S.A., Hongkong, helped provide this information. They also reported some data on the Hongkong industry, showing that 25,823 short tons of paper were imported into Hongkong in 1952, and 80 percent of this (21,088 tons) was re-exported. China took approximately 50% of the exports, with Indonesia, Formosa and Korea, in that order, accounting for the balance. Paper consumption in Hongkong itself was 4,735 tons.

### TAIWAN—PAPER PRODUCTION

(In Short Tons)

	Paper	Board
1946*	2,170	1,932
1947	6,158	4,388
1948	7,932	4,477
1949	7,000	4,510
1950	9,760	3,879
1951	17,157	6,111
1952	18,500	7,000

\* For 1946-1950 inclusive the production figures are of Taiwan Pulp & Paper Corp.; figures for later years are combined production of all mills in Taiwan Island.

## INDIA

### Will Make Newsprint

(India's 370 million people use an average of about 1½ lbs. of paper per person per year.)

DESPITE FOREIGN COMPETITION, rising costs and shortage of raw materials, the paper industry in India is one that has made consistent progress since the end of British rule and partition of the sub-continent.

There are 17 paper mills in India today, with a rated capacity of about 125,000 tons, although actual output during the past year has been closer to 140,000 tons as a result of the expansion of individual plants. Three mills have recently



### INDUSTRY LEADERS IN INDIA

G. F. BIRLA (left) is Chairman of Board of Orient Paper Mills Ltd. of Brajrajnagar, Sambalpur, India, and F. S. MITCHELL (right) is Managing Director of the Titaghur Paper Mills Ltd. He is a mechanical engineer.

been established, one of the newest at Tribeni, Bengal, producing 3,500 tons of cigarette paper a year and another at Nangud producing writing, print and wrapping papers. The largest mill in the country has a production of about 35,000 tons and the smallest about 1,100 tons. In addition, there are approximately an equal number of board mills, most of them quite small.

This year will probably see the first newsprint produced in India, sabai grass and bamboo being raw materials. This mill, operated by National Newsprint and Paper Mills Ltd. at Chadni (called the NEPA mill), will have a production of 30,000 tons a year. Another mill planned to produce groundwood is under construction.

The new newsprint machine is a 226 in. unit built by Pusey & Jones, Corp., Wilmington, Del. (U.S.A.) It is being erected under the supervision of Wm. A. Stricker of Pusey & Jones Corp.

The \$12,000,000 newsprint operation is located about 325 miles north of Bombay. Competent engineers with degrees from some of Asia's best universities have accepted employment as technicians, machinists, foremen and secretaries.

Originally scheduled for operation four years ago, two years after Ebasco undertook to plan and engineer the operation,

**DR. BHAT**, author of part of the accompanying report on India, sent these two pictures of new construction at the BALLARPUR PAPER AND STRAWBOARD MILLS LTD., at Ballarpur, Madhya Pradesh, India. View at left is chemical and recovery section. View at right shows two tanks (large one for black liquor, small one for white liquor) and Derrco Clarifier under construction.

the Nepla mill has taken a long time to complete, as C. A. Harwick, Ebasco's manager of industrial engineering, points out.

"I have seen a crowd of workers hacking away for hours at some earth-moving job. Often a bulldozer would be standing idle because oil and gasoline would cost more than manpower. Many of the 600 workers don't speak the same tongue. Even the directors on the paper company's board speak five different languages. The mill is in jungle country and last summer a cattle herder was killed by a tiger only four miles away."

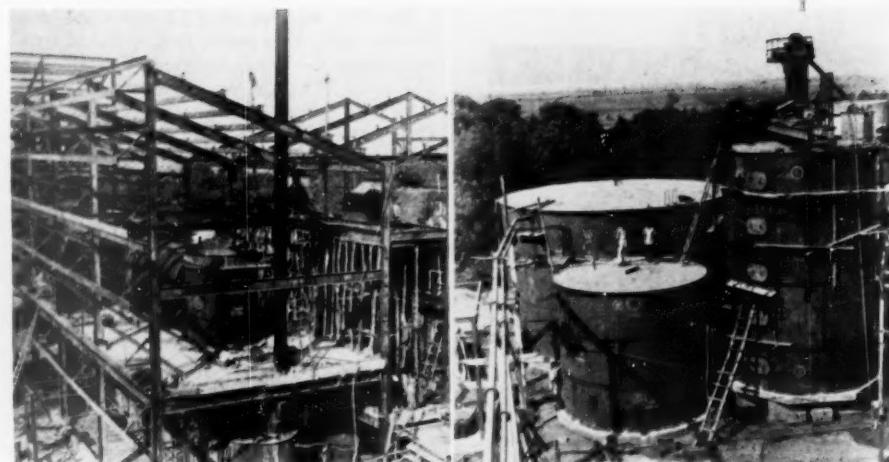
Here follows a report on expansion in India by a forest research official who is close to the projects:

**By R. V. BHAT**

**Officer in Charge, Cellulose and Paper Branch, Forest Research Institute, New Forest, Dehra Dun, India.**

Considerable progress has been made in the expansion program of the Indian paper industry. Recently, two new mills went into production—one in Mysore State and the other in Madhya Pradesh. Some mills have added new pulping equipment and paper machines and some are modernizing. Attention is also paid to the soda recovery system. One mill has recently installed a Tomlinson furnace.

New fibrous raw materials are used in two mills, but bamboo and sabai grass (*Eulaliopsis binata*) still continue to constitute the bulk of the raw materials of



the paper industry. Rags are also used to some extent. Paper cuttings in small quantities are used for lower quality paper and boards. A mill in Hyderabad manufactures about 2,000 tons of wood pulp per year from *Boswellia serrata* (*salai*), a broad-leaved species, and uses this pulp for blending with bamboo pulp

tons of paper and paper manufactures imported into India during 1951-52, newsprint (50,482 tons) formed the major item.

The government has realized the importance of manufacturing newsprint and is seriously considering exploitation of silver nr (*Abies pindrow*) and spruce (*Picea morinda*) occurring at 8,000-10,000 ft. in inaccessible, rugged terrains of the Himalayan regions.

In 1951-52, India exported only 1,204 tons of paper worth about \$568,000 and 2,146 tons of board worth about \$500,000. Present annual consumption of all kinds excluding newsprint is about 175,000 tons. The annual consumption of newsprint is about 60,000 tons.



**DR. R. V. BHAT**, who is Officer-in-Charge of Cellulose and Paper Branch of Forest Research Institute at Dehra Dun, India. He wrote special report for PULP & PAPER readers.

in manufacture of writing and printing papers. A mill in Bihar has been successfully pulping bagasse by the Celdecor-Pomilio continuous process and is producing daily about 20 tons of bleached pulp. This is blended with bamboo pulp for Duplex and Triplex boards and lightweight papers, the latter made on a tissue machine recently installed.

The industry has begun to realize the advantages of multistage bleaching using elemental chlorine, caustic soda extraction and bleaching powder. The new mill in Madhya Pradesh which went into production this summer uses this process for bleaching bamboo pulp. A mill in Orissa has also started using this process for bamboo pulp. Till recently, only one mill was using this process, a mill in Bengal, still the only mill pulping bamboo by sulfite process. The others use the sulfate process.

Another development is the introduction of Mordens Stock-Makers (Portland, Ore., U.S.A.) for preparation of bamboo stock at the Madhya Pradesh mill.

The mill in Bihar is producing about 2,500 tons per year of groundwood pulp from spruce (*Picea morinda*). This pulp is used in lower quality Duplex and Triplex boards for "fillers."

For the 100-ton newsprint mill in Madhya Pradesh, *Boswellia serrata* (*salai*) will be used for mechanical pulp, bamboo chemical pulp for blend. Of 87,140

### Some Woodpulp Imported

Between 5 and 10 percent of the raw material used in the manufacture of higher quality paper consists of imported woodpulp.

Besides the above report by Dr. Bhat, PULP & PAPER heard from Richard Grew, commercial counsellor for the Canadian government at New Delhi, who writes: "In spite of the rising spiral of material and labor costs the industry has successfully kept selling prices for paper at a minimum. During 1951, the basic price of paper for all the mills remained at about \$47.40 per ton f.o.b. destination, compared with a landed cost of \$67.20 for a similar quality of imported papers, which includes a duty of nearly 40 percent ad valorem. The government was supplied at even lower rates. Indian paper prices, it is claimed, are lower than any in the world. The industry is largely dependent on imported chemicals and machinery."

The Indian government's Panel on Paper, set up in 1944, estimated 1951 consumption and production targets should be 220,000 tons and 169,000 tons respectively, and 322,000 and 312,000 tons by 1956.

S. C. Laharry, editor of *Indian Pulp and Paper*, cautions that:

"A current survey of any industry in India must necessarily take into consideration the broad outline of national and economic advancement envisaged in the first 5-Year Plan drawn up by the Planning Commission. The Commission programmed a total expenditure of over

### INDIA—PAPER PRODUCTION

	(In Tons)		
	1946	1951	1952
Printing and Writing	64,900	79,263	91,430
Kraft wrapping	10,433	17,103	12,065
Other wrapping	5,255	8,384	9,450
Paperboards	18,587	27,960	21,830
Specialties	6,824	3,188	2,820
Total	105,999	135,898	137,595

### INDIA—PAPER IMPORTS

(Fiscal year 1951-52)

	Tons	Value (dollars)
Kraft	2,400	\$ 1,012,375
Other wrapping	8,805	4,050,235
Newsprint	50,482	11,409,112
Printing	7,130	2,875,211
Writing	4,943	2,450,375
Other paper and products	13,380	4,409,135
Boards and products	3,756	1,461,550
Total	90,896	\$27,667,993

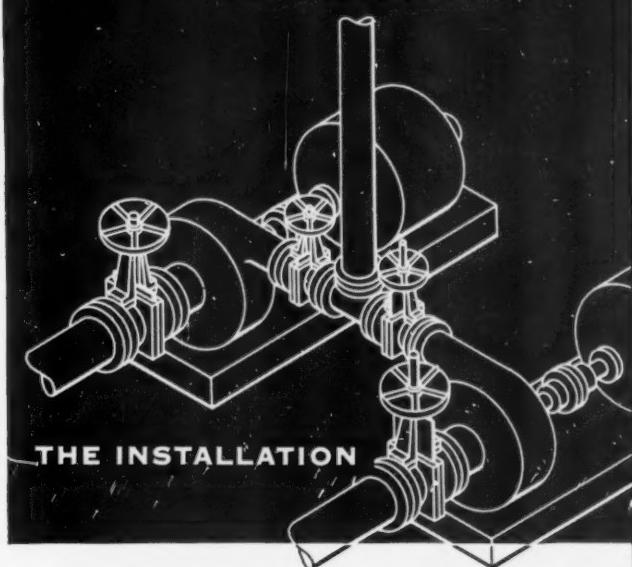
### INDIA—WOODPULP

Tons Imported

1950 .....	7,786
1951 .....	4,748
1952 .....	5,677

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*...on 5% Pulp Stock,  
for instance*



At The Mead Corporation board mill, Sylva, N. C., with Crane Pulp Stock Valves on pumps handling old paper stock of 5% consistency.

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Up until 1945, the mill had considerable trouble with clogging of valves on this service. The heavy stock was constantly getting trapped under the disc and collecting in the bonnet, clogging the lines and making the valves inoperable. The frequency of shutdowns for clean-outs was annoying; the cost in maintenance and production loss extremely high.

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*No repairs needed*

### SERVICE LIFE:

*Installed in 1945—good as new*

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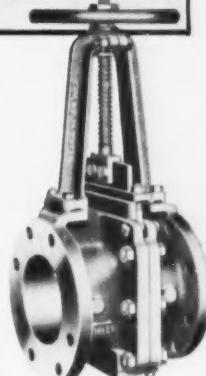
*Uninterrupted production*

### AVAILABILITY:

*Crane Catalog item, No. 1425*

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four billion dollars for the period ending March 1956. A sum exceeding \$300 millions is proposed for education, to increase pupils in primary, secondary, industrial and technical schools by 7.5 millions. In the field of communications, it is proposed to provide a postoffice for every village with a population of 2,000. Both these developments point to a larger demand for paper.

"Industrial development in the Plan is to proceed simultaneously in the public and the private sectors. The State already owns a number of industrial enterprises and reserves certain industries, such as arms and ammunition, to itself. The paper and board industry is largely the responsibility of private enterprise—only the Nipa Mills in Madhya Pradesh and the Sirpur Paper Mills in Hyderabad have been specially included in the public sector.

"Twenty mills with rated capacity of 54,000 tons were engaged in 1952 in the manufacture of straw and other boards. Production, however, was very much below capacity. It has been estimated that the demand for boards will increase to 95,000 tons by 1956 due to larger demands by the textile, footwear, pharmaceutical and other industries. A sum of about \$45 millions is invested in the paper and board industry.

"In view of the larger production planned for 1956 there is urgent necessity for devoting attention to the scientific cultivation of bamboo and grass, the main raw materials of the industry. This is all the more pressing because of the possible demand for rayon grade pulp by the three rayon units—two viscose rayon factories that are already working and one acetate rayon undertaking that will shortly be completed in Hyderabad. All these factories are at present importing pulp but they have plans to manufacture their own pulp."

## PAKISTAN Three New Mills

(Pakistan's 80,000,000 people use an estimated average of under one pound of paper per person per year.)

**CONSTRUCTION OF A FINE PAPER MILL** in East Pakistan, which was started in 1950, is now nearing completion, and initial production was scheduled for the summer of 1953. Full capacity, 30,000 tons, will probably not be reached until fall.

This enterprise will make Pakistan largely self-sufficient in most grades of paper with the exception of newsprint.

The government of Pakistan is also building a high grade paperboard mill at an estimated cost of \$2,700,000 and a strawboard mill which will cost about \$1,800,000. Both these mills are expected to be completed by the middle of 1954.

The paper mill now almost ready to go into operation is located at Chandraghona in the Chittagong Hill tract. It will utilize bamboo and will comprise a sulfate mill with six digesters and a paper mill with

## PAKISTAN—PAPER IMPORTS (In short tons)

	Wrapping	Printing inc.	Writing news	Paper-board	All Paper (inc. others)
1950	6,226	8,871	2,477	3,080	23,516
1951	1,618	11,255	2,537	3,497	21,228
1952	2,500	12,000	2,800	4,000	24,411

three Walmsley machines, two Fourdriniers and a 14-cylinder machine.

Kuljian Corp. of Philadelphia, U.S.A., designed the mill and arranged for the purchase of most of the equipment. The recovery system is being provided by Combustion Engineering, Inc. (U.S.A.), and it will produce 50,000 pounds of steam per hour at 425 p.s.i.g. 775° F. total temperature.

The mill will be operated by the Pakistan Industrial Development Corp., a government corporation established to encourage and maintain heavy industry.

Spokesman for Pakistan, Mohammed Ali, recently elected prime minister of this largest Moslem nation in the world, declared that he would welcome opportunities to discuss economic problems with Western powers.

The country is somewhat backward politically as well as industrially, lacking a constitution, but development of a paper industry is regarded as one of the first important moves towards utilizing the country's raw materials and stimulating employment of technical skill.

Investigations have been under way with a view to determining the feasibility of establishing a newsprint mill, using pulpwood from the Sunderbans forests, but no decision has yet been reached.

From S. F. Alum, commercial attache for Pakistan in Canada, comes word that the new Karnaphuli Paper Mills at Chandraghona, the Amangarh high grade board mill at Nowshera and the Rahwali strawboard mill will make 45,000 tons a year, all new production.

His report confirmed the first named will use bamboo, making 100 tons a day of kraft pulp by mid-1953.

The Amangarh mill will make 25 tons a day. This will be the first mill in the Indo-Pakistan sub-continent of Asia to make a combination board and operate a combination machine and it will also be the first to use the neutral sulfite semi-chemical pulping process. Bagasse and Bhabhar grass will be used.

The strawboard mill at Rahwali will use rice and wheat straw to make 25 tons a day. It will use Hydropulpers (Shartle-U.S.A.).

The latter two mills start up in mid-1954.

Plans for a newsprint mill, which would be first mill in Pakistan to use indigenous woods, are being studied by the Pakistan Industrial Development Corp.

## TURKEY

### Two New Mills

(Turkey's 22,000,000 people use an average of 4 lbs. of paper per person per year.)

**THE PAPER INDUSTRY** in Turkey dates from 1936 when the first two plants of Cellulose Works Establishment, a subsidiary of Sümerbank, were set up at Izmit. Two paper machines produced a yearly volume of 13,000 short tons of writing, printing, packing paper and cardboard. A pulp plant was set up at the same time, with one woodpulp machine and two grinders, producing 12,000 short tons of pulp per annum.

A second paper mill, with yearly capacity of 120,000 tons of newsprint and 700 tons of cigarette paper, went into operation in 1944. Additional plants were also set up for wood, straw and rag pulps.

In 1952 this second paper mill was increased through the addition of a Yankee machine capable of 5000 to 9000 tons of packing paper a year. A third mill, now under construction, is expected to be working by the end of 1953, making yellow straw paper, cardboard, corrugated board and packaging boxes. Productive capacity is estimated at 20-25,000 tons a year.

**PULP & PAPER** is indebted to İzzet Erksal and Hasan Kemal Haksel of Sümerbank General Directorate for the above report on the Turkish industry.

During the first seven months of 1952, Turkey made 17,000 tons. This was expected to reach close to 30,000 by the year's end, as a result partly of the new

**PHOTOGRAPH OF TURKISH Paper and Cardboard Mill at Izmit, Turkey, sent to PULP & PAPER by Hasan Kemal Haksel and İzzet Erksal, of the directorate of Sümerbank Genel Mueduerluk, in Ankara, Turkey.**





## ASIA

mill. This was about 65 percent of its needs. By the end of 1953, Turkey was expected to supply its entire paper and cardboard needs.

In Turkey, the Cellulose Industries, with cooperation of the Ministry of Agriculture, has been conducting a campaign for over two years to induce farmers to plant poplar seedlings. It was reported meeting with success and some 500,000 seedlings were distributed last year.

Sandy Hill Iron & Brass Works (U.S.A.) made a paper industry technical survey for Turkey.

### TURKEY—PAPER-PULP (In Thousands of short tons)

	Paper Produced	Chem. Woodpulp	Ground- wood	Chem. Pulp- Imports
1949 .....	18.4			(not available)
1950 .....	20.			(not available)
1951 .....	23.2	10	8	2
1952 .....	30.	12	9	3

## ISRAEL

### First 2 Paper Mills

(Israel's 1,400,000 people use an average of 8 lbs. of paper per person per year.)

TO THE PEOPLE OF THE YOUNG nation of Israel, the establishment of a paper industry in that country is a dramatic symbol of its drive toward industrialization goals.

American Israeli Paper Mills Ltd., of Tel Aviv, is the sponsoring corporation of the new 25,000 tons-per-year printing, writing and kraft papers mills which is being built at Hadera, a town within a couple miles of the Mediterranean coast and about 30 miles north of Tel Aviv.

This has been hailed in publicity widely published in America, as the first paper mill in Israel.

But other reports tell of the Supra Mill, at Lydda, "the young nation's pioneering paper mill," which is already making wrapping paper with financial aid from the American investments in the Israel Bond Issue. Waste paper is used here and plans call for an extensive expansion of the mill, as funds become available from the bond drive. The mill is located on a former orange grove at Lydda, which is about 20 miles inland and southeast from Tel Aviv on the road to Jerusalem.

So there seem to be two first mills in the little country.

The Hadera mill is designed by Merritt, Chapman & Scott. It is located in sand dune country, which is lined with irrigation canals. This mill's output is expected to satisfy 60 percent of Israel's needs. Contract for it was let in 1951. Early this year, machine room, finishing room and office building were almost complete. It

# PANALARM

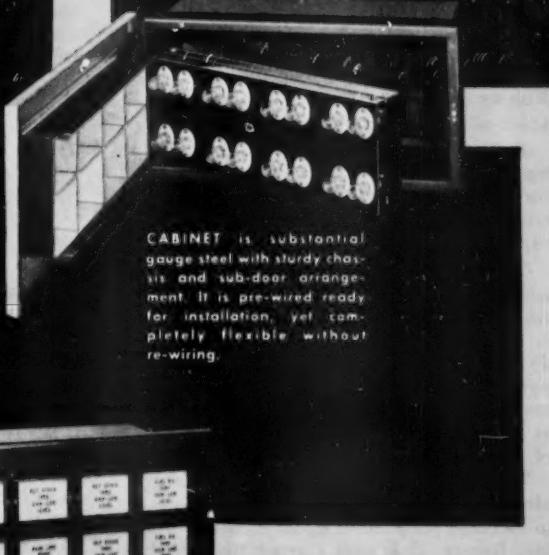
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## THE PHILIPPINES

### More Mills Planned

(The Philippines' 20,000,000 people use an average of 9 lbs. of paper per person per year.)

**TWO PROJECTS FOR EXPANSION** of pulp and paper production in the Philippines have caused considerable stir in that young republic.

Col. Andres Soriano, head of the Soriano enterprises, has proposed that his companies combine with San Miguel Brewery, which also has planned to enter this industry, and that they build a new wood-pulp and paper mill on the Cateel River in Bislig Bay area of Surigao, Mindanao, making 200 tons daily of kraft and newsprint, mostly from Mindanao logging and sawmill waste mixed with longer vegetable fibers.

The other project is for sugar cane bagasse pulp for rayon, announced by Oscar Kohorn & Co. Ltd., and it would also involve a very small rayon plant.

J. Amado Araneta, of the sugar industry, is back of project and announced his Rayon Corp. of the Philippines plans operations in Negros Occidental, with pulp, rayon and weaving plants under one roof.

Observers are taking a "wait-and-see" attitude toward the latter project. Meanwhile there is one company which already is using bagasse—Compania de Celulosa de Filipinas, the only mill making fine papers. A letter from M. Rivers, its general manager, to PULP & PAPER, says its plant, at Bais, Negros Oriental, made 4,720 tons of bond paper last year.

"This year, with more power available, after enlarging our power plant, we expect to increase production by 20 percent," said Mr. Rivers. This mill started up in 1949 as a subsidiary of the Philippines Tobacco Co.

The paperboard mill of The Philippines Paper Mills Inc., which started up in 1951, as was reported in this section last year, also is expanding. Its president and general manager, Alexander A. Adamson, writes that it has started a new pulping

unit and is also making new white linerboard products. It has added another Shartle-Dilts Hydrapulper, a midget jordan and a dryer section which gives the paperboard machine (see picture) a capacity of 30 tons a day. Thus, it has doubled capacity since a year ago.

This mill has also added a Waldron 52 in. Laminator for book covers, check books, and other products.

"Our production for 1952 exceeded 2,500 tons and this year we expect to finish close to 4,500 tons," writes Mr. Adamson. "We plan to add a new wet machine to make leatherboard and other products. We also are conducting experiments with

ALEXANDER A. ADAMSON, Pres. and Gen. Mgr., Philippine Paper Mills, reports progress for WORLD REVIEW.



semi-chemical processes to utilize local straw and other fibers."

Mr. Adamson also is superintendent of the mill, and his staff includes Achit Indradat, maintenance engineer; Carlos Nasol, plant engineer, and Carlos Mendoza, Alfonso Redona and Jose Odilao, shift engineers.

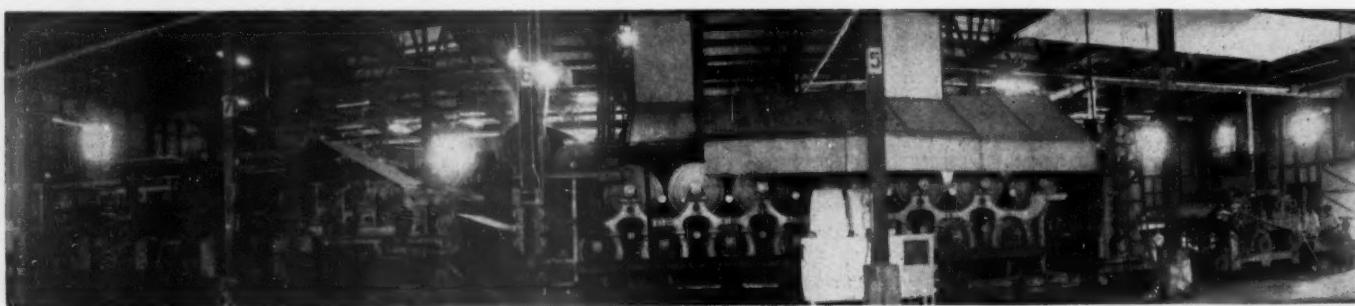
Cebu Portland Cement Co., Eduardo Taylor, manager, is operating a small kraft bag plant, but is not running a kraft paper mill which it acquired in 1950. It has studied uses for cane in Negros, hemp in Davao, wood in Luzon, bamboo in Bataan.

#### The Soriano Project

Industry observers in the Philippines are confident the Soriano project eventually will be carried out. Sandy Hill Iron & Brass Works and Bauer Bros. in the U.S., have been assisting. This project was first reported a year ago in this REVIEW NUMBER.

A United Nations pulp and paper survey mission of four Norwegians and one Dane have been in the country, talking up uses

COMPOSITE VIEW made from three photographs of the No. 1 paperboard machine of Philippine Paper Mills Inc., at Tondo, Manila. It trims 76 in. and has infra-red drying. This machine started up in 1951 but these are pictures taken this year by President A. A. Adamson. Note smoothing press ahead of dryer and rotary cutter at dry end. A dryer section was added this year.



## THE PHILIPPINES—IMPORTS

(In Short Tons)

	Fine & Book Newsprint	Paper	Wood Pulp	All Paper and Woodpulp
1947	19,278	1,463	—	—
1949	30,151	2,564	221	58,796
1950	24,842	4,646	357	61,552
1951	32,046	9,812	51	71,400
1952	16,146	10,561	60	58,982

for logging and sawmill waste, abaca, waste, rice straw, etc. Per Klem, a Norwegian, stayed on as United Nations technician cooperating with the government. Reports say Mr. Klem "has started plans for mills, and will have a Swedish engineer to aid him." The cement company's idle kraft mill is a projected "pilot plant."

Col. Soriano's mill project, he hopes, would make 100 tons of kraft products and 100 tons newsprint. Most Filipino woods are short-fibers but long fibers from abaca and kenaf may be added. Satisfactory tests were reported made at the U.S. Forest Products lab in Madison, Wis. It is proposed to negotiate a loan from the U.S. Export-Import Bank.

## REST OF ASIA

### Wars Hamper Work

(Over 160,000,000 people in other Asiatic countries not treated separately in this section use an average of 2 to 5 lbs. of paper per person per year.)

GUERRILLA WARS and other unsettled conditions have hampered some of the plans for development of pulp and paper industries in French Indo-China, Indonesia and other countries of Asia.

The Republic of Indonesia has taken steps to establish a kraft pulp and paper industry on the island of Sumatra, to be based on pine. The selected site is Aek Naoli, near Toba Lake, in northeast Sumatra.

Indo-China and Indonesia were estimated to be making around 2,000,000 tons each per year of paper and Thailand almost as much. In Ceylon there is also some production.

If the new industry in New Zealand, based on fastest growing pine in the world, thrives as expected, here may be some nearby markets.

Much can be done to raise the per capita use of paper. In Malaya the use is estimated at about 15 lbs. per person but Indo-China is rated as low as two-thirds of a lb. and the Arab states in western Asia at two lbs. or less.

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March 17, 1953

Mr. John Plantefaber, President  
Rocky River Paper Company  
Three Rivers, Michigan

Dear Mr. Plantefaber:

Enclosed is a report of a waste survey made at your mill by our staff engineers on January 13 and 14, 1953.

The results of this survey show an excellent reduction in all waste constituents below that found in any previous survey. Of particular importance is the current fiber loss which was measured at forty-one pounds per day equivalent to 0.05% of production. This is well below the 1% limit that you are required to meet by order of this commission. With the reuse of recovered pulp from the save-all unit well established, we can report that your mill is in compliance with the order.

The record as determined by this survey is such that your mill now ranks near the top among the paper mills of the state, in waste control performance. We wish to commend you on this accomplishment, and to solicit your continued interest and cooperation in maintaining this position.

Very truly yours,

Loring F. Oeming  
Chief Engineer  
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## A F R I C A

### New Mills In South Africa, Rhodesia and North Africa Resources of the Future—Hardwoods, Papyrus, Alfa-Grass

#### SOUTH AFRICA

##### New Mills a-Building

(Union of South Africa's 13,000,000 persons use an average of 37 lbs. of paper per person per year.)

PULP AND PAPER ACTIVITY in this fast-developing nation in South Africa has attracted wide interest of the industry and the supply and machinery elements.

In this 1953 report, PULP & PAPER has information from J. E. Henderson, general manager of South African Pulp & Paper Industries, Ltd., which has started up a new paper machine.

He also gives later word on building a new kraft pulp and paper mill and expanding in other directions.

Also from Snia Viscosa, engineering firm of Milan, Italy, comes news of the new rayon pulp plant it is building in

Natal province with Courtaulds Ltd., of London, and Industrial Development Corp of South Africa.

These will bring to six the number of mills in South Africa.

Here is the report from Mr. Henderson on his company's expansion:

Towards the end of 1952, South African Pulp and Paper Industries commissioned their new 120 in. Walmsleys Fourdrinier machine—the largest paper machine installation in Southern Africa—and increased production at their Enstra Pulp and Paper Mill near Springs, to 100 tons per day of pulp and bleached printing and writing papers.

"Since the end of the year extensions to the company's pulp and chemical plants (including the installation of a battery of Hooker cells which will increase the production of chlorine and caustic soda) have also been completed.

"Sappi's new venture in Zululand at the mouth of Tugela River, north of Durban—a 100-ton-per-day unbleached kraft pulp

and paper mill—is steadily taking shape, and construction is expected to be completed in the first quarter of 1954.

"The company has started large forestation schemes in climatically suitable areas of South Africa for its increasing requirements of pulpwood.

"Despite heavy falls in the prices of imported papers, the pulp and paper industry in South Africa enjoyed a good year in 1952 and had no difficulty in disposing of its output at prices below imported levels. Imports to South Africa remained at substantially the same levels as in previous years, but as local production increases these may be expected to fall away until the country eventually becomes practically self-sufficient.

"The demand for all paper products showed a steady increase in the country during 1952 and the prospects of the industry generally appear good."

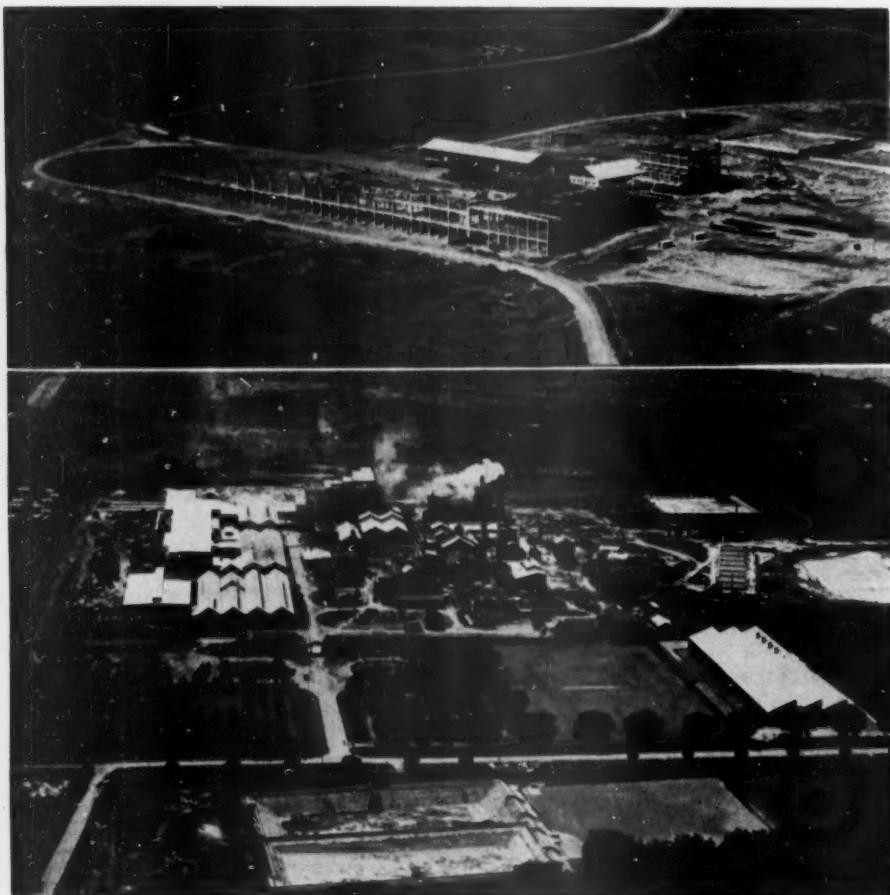
South African Pulp and Paper Industries, to date, is the only producer of woodpulp for paper manufacture in South Africa. It is at present producing about 35,000 tons/annum of bleached pulp, and an additional 30,000 tons/annum of unbleached pulp will be produced at the Zululand mill. As all this pulp will be converted to paper, no South African pulp will be available for sale locally or abroad.

From Snia Viscosa, Milan engineers for application of the Viscose processes, who are also constructing a dissolving pulp mill in Mexico, comes this word of their venture with Courtaulds and the South African I.D.C.:

"We have begun construction of our new rayon pulp plant at Umkomaas, province of Natal.

"The capacity of the mill will be of 120 metric tons (132 short tons) of pulp per day. The raw materials will be the following:

"Wood: Eucalyptus saligna from plantations owned by the company in Zululand.

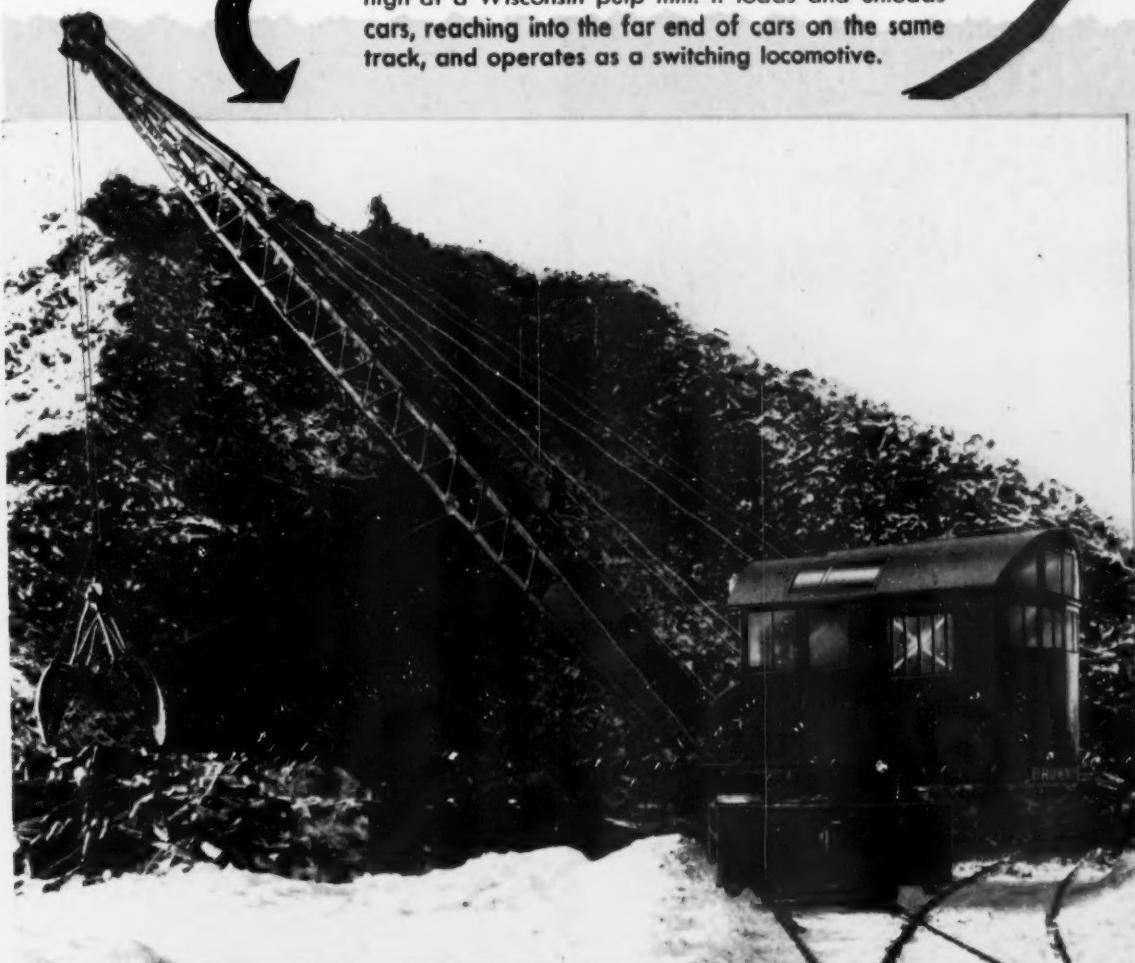


#### KRAFT MILL RISES IN ZULULAND

ABOVE—AERIAL VIEW OF SOUTH AFRICAN PULP & PAPER INDUSTRIES LTD.'s new 100 tons per day unbleached kraft pulp and paper mill now under construction at mouth of Tugela River in Zululand, north of Durban. Pulp Preparation Plant and Machine Room are in foreground. Tall building in right background will house main 10,000 KW/Hr. high pressure Metro-Vick turbine generator.

BELOW—AERIAL VIEW OF SOUTH AFRICAN PULP & PAPER INDUSTRIES LTD.'s bleached pulp and paper mill at Springs, South Africa. Here the biggest paper machine in Southern Africa—a 120 in. Fourdrinier—started up for printing and writing papers in late 1952.

This BROWNING 30-Ton Diesel TorQflo locomotive crane, equipped with a three-quarter-cord wood grapple on a 55-foot boom, piles pulpwood high at a Wisconsin pulp mill. It loads and unloads cars, reaching into the far end of cars on the same track, and operates as a switching locomotive.



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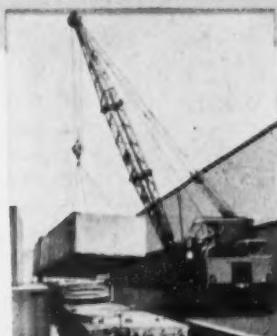
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BRIDGE CONSTRUCTION



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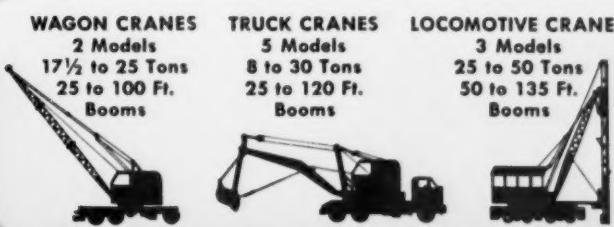
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- Fewer wearing parts.

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**MORRIS** Centrifugal Pumps

"Sulfur dioxide (for the liquor plant): From the processing of pyrites supplied by quarries in Rhodesia.

"Limestone: Supplied by South African quarries.

"Coal: Supplied by Natal Associated Collieries.

"Soda & Chlorine: Supplied by the African Explosives and Chemical Industries, Ltd.

"Electric Power: Partly supplied by the mill's power station and the rest by ESCOM.

"Water: Will be drawn from the Umkomaas River.

"The name and address of the South African company are: The South African Industrial Cellulose Corp. (Pty) Ltd., 1000/1004 Albany House, Victoria Embankment, (Esplanade), Durban.

"The total cost of the scheme will be of about £6,000,000. The machinery and technical equipment will be supplied by Snia from the workshops of associated companies, and we also are consultants and have the responsibility for the erection of the plant.

"The technicians and specialized labor will be also sent from Italy both for the erection and for the operation of the factory, and we have the responsibility for the choice of the personnel. Consequently, about 300 Italians will emigrate to South Africa by the end of this year.

"Also the technical management of the factory will be Italian and we will supply the necessary staff."

Within the past two years specialty paper production has more than doubled in South Africa—from 40 to 90 tons a day. Such an output covers about 60 percent of the Union's requirements.

Kraft production has also been sharply increased. This has been averaging about 7,000 tons a year, but within a few months it will top 40,000 tons.

Pine, eucalyptus and local wattle are raw material sources on which present and future South African industry is based. Considerable quantities of printing and other papers are being imported, also. Imports of wood pulp were only 1,000 tons in 1952, compared with 2,000 in 1951.

About 55 percent of the wood used in the manufacture of sulfate pulp at Springs (S.A.P.P.I. Mill) is from wattle plantations—mostly wood that would otherwise be wasted. Thinnings and saw-mill edgings from blue gum and pine plantations comprise the remainder of the raw material.

For many years the packaging industry in South Africa was obliged to import most of its kraft paper requirements. The only domestic supplier has been Premier Paper Mills near Johannesburg with an average annual production of 7,000 tons. Besides the S.A.P.P.I. kraft mill under construction, a newcomer to the industry this year is the kraft mill of Ngoye Paper Mills (Pty) Ltd., at Felixton, Natal, 50

# A Progress Report on the Status of FluoSolids

## *Applications of Non-Catalytic Fluid Techniques Expanding into Many New Fields*

Pioneered by Standard Oil Development Company during World War II, fluidization is today widely recognized as an ideal means of promoting intimate contact between solids and gases. As licensee in all non-catalytic non-hydrocarbon fields, The Dorr Company has continually expanded the applications of this new technique since 1944. At the present time, FluoSolids is demonstrating outstanding advantages in the processing of a wide variety of metallic and non-metallic minerals, and holds great promise for the future in other fields not yet fully developed.

### **GOLD**

One of the first applications of the Dorco FluoSolids System was the roasting of arsenopyrite gold ores prior to cyanidation, and several installations have been operating with marked success for two to five years. Latest development for gold roasting is the split compartment Reactor. In this type of unit, preliminary reducing conditions are provided in one half of the Reactor and a complete oxidizing roast in the other, resulting in decreased cyanide consumption and better metallurgy at the mill.

### **PYRITE**

The sulfur shortage has contributed to great activity in the pulp and paper field. Eight FluoSolids Systems in the U. S.,

Canada and Norway are either in operation or under construction in sulfite pulp mills, for the production of SO<sub>2</sub> for cooking liquor. Eight more are in operation or being installed to produce SO<sub>2</sub> from pyrite, pyrrhotite and low grade sulfur ores at acid plants, which will produce over 1200 tons per day of H<sub>2</sub>SO<sub>4</sub> by the contact method. This impressive record results directly from the fact that FluoSolids can deliver a high strength SO<sub>2</sub> gas at lower investment and operating costs than conventional roasters and provides users with an economically feasible and reliable source of SO<sub>2</sub> despite fluctuations in natural sulfur supply.

### **ZINC**

The first commercial FluoSolids installation for the roasting of zinc concentrate went into operation in the summer of 1952. It is producing SO<sub>2</sub> gas for sulfuric acid manufacture and a desulfurized zinc calcine for leaching, prior to electrolytic zinc production. Results to date have demonstrated marked simplicity of control and operation, and two other zinc producers have ordered similar systems.

### **COPPER**

More recently, the first FluoSolids System to provide a sulfating roast to a copper-zinc concentrate went into operation. In this application, close operating con-

trols make it possible to render the valuable base metals soluble and, at the same time, minimize solubility of the iron. This permits high recoveries of copper and zinc by leaching. When followed by electrolytic precipitation, economic advantages are indicated under many conditions as compared with conventional smelting practice.

### **NEW DEVELOPMENTS**

Studies to explore the utilization of FluoSolids for the beneficiation of low grade iron ore are now being conducted. In this operation, hematite is given a reducing roast to convert it to magnetite for subsequent concentration by wet magnetic means. Higher unit recovery of iron and the production of better concentrate grades indicates improved economics as compared with other beneficiation methods.

Among the other numerous fields currently under investigation are the calcination of alumina, the reburning of precipitated lime sludge and the self roasting of low grade sulfur ores.

If you would like more information on FluoSolids — the most significant advance in roasting technique in the last 30 years — write The Dorr Company, Stamford, Conn. or in Canada, The Dorr Company, 26 St. Clair Avenue East, Toronto 5.

*FluoSolids is a trademark of The Dorr Company, Reg. U. S. Pat. Off.*



## AFRICA

miles north of Mandeni in the sugar country. Bagasse is the raw material. This plant will produce kraft liner board—about 4,000 tons a year.

Plans for a newsprint mill at Sabie in the Eastern Transvaal are being actively discussed. To cost approximately \$10,000,000, it would be financed by Central Mining and Investment Corp. and produce about 100 tons of newsprint daily.

South Africa is at present importing about 200 tons of newsprint daily. The mill would draw from the government's 50,000-acre pine plantations surrounding Sabie.

Suitcase fiber and board for the shoe and car industries are being manufactured at a new mill of S. A. Adamas Fibreboard and Paper Mills (Pty) Ltd., which started in 1952.

Another recent development is a modern waste paper pulp plant by Cellulose Products Ltd. in Johannesburg which has increased its output and added wrapping paper to its products.

### SOUTH AFRICA—PAPER

	1952 Tons	1953* Tons
Production—kraft paper	7,000	30,000
Production—all paper	52,000	65,000
Consumption—all paper	210,000	220,000
Consumption—newsprint	60,000	65,000

\* Estimate by PULP & PAPER.

## MIDDLE AFRICA

### Congo "Dream" Mills

(Middle Africa's 80 million people—the Congolands, Cameroons, French West Africa, British and Portuguese East Africa and Ethiopia—use from 5 to less than 1 lb. of paper per person per year.)

NEWS OF A NEW MILL in Southern Rhodesia and an exclusive report from the Belgian Congo announcing plans for three pulp and paper mills there by 1956—those were highlights of reports direct to PULP & PAPER from Middle Africa.

British Colonial office officials sent news that Rhodesia Pulp and Paper Industries, Ltd., associated with Premier Paper Mills Ltd. of South Africa, have started up a new mill at Norton, near Salisbury, using wattle and waste paper. The mill has estimated capacity to produce 3,750 tons of paper and 1,200 tons of board annually. It went into production in April 1953.

A British East Africa company, Paper Mills (East Africa) Ltd., announces it would like to interest U.S. capital in a plant to make paper from wattle trees and sisal poles. The firm said it already

has spent several thousands of dollars in research and has an option on a site at Thika, Kenya, 25 miles from Nairobi.

Also there were earlier reports that another mill in Rhodesia might be built with backing of C. Davidson & Sons, with mills in Mugiemoss, Scotland, and British Plaster Board Ltd. The French have been studying prospects for a mill in the Cameroons, north of the Congo, and possibly others in French Congo and French West Africa, using hardwoods and soft in blend.

But getting back to the Belgian Congo report. This is what was sent to PULP & PAPER by C. Brau, director-chef de service, of the government at Leopoldville on Apr. 24, 1953:

"Several syndicates have organized to study projects for new pulp mills. Projects of the Syndicat de la Cellulose Africaine are in an advanced stage for exploitation of the papyrus grass around Lake Kisale in the Katanga (the same papyrus that Egyptians used in 4th century B.C. for scrolls). An enormous amount is available. Experiments in U.S.A. and Italy have proven it is possible to make silk and paper from it.

The Societe Agrifor is studying possibilities of making pulp with hardwoods from tropical regions, especially in the Mayumbe district, lower Congo. Many technical problems are declared solved and tests have been made successfully. Problems of financing and economic operation are being studied.

Another similar study is under way to use hardwoods in the forests of Lake Leopold II in the Province of the Equator.

It is expected that by 1956 there will be three pulp mills in the Belgian Congo. Meanwhile all papers are imported, the largest newsprint imports being in this order: Canada, U.S.A., Belgium, Finland, Sweden, and Holland."

Earlier a letter to PULP & PAPER from J. Remont, of ARMCO S.A., subsidiary of Armco Steel Co. of Middletown, O., wrote that: "The papyrus at Lake Kisale is mixed with water vegetation which makes its use difficult. The syndicate was using a helicopter in making a survey and it crashed there recently, killing the white operator."

## NORTH AFRICA

### Esparto Grass Mills

(North Africa's 60 million people use from 11 lbs. in Algeria to less than 1 lb. in other areas per person per year).

FRENCH PLANS to utilize its resources of esparto grass in North Africa, heretofore largely shipped to Britain as raw material for fine papers, have borne fruit. The grass grows wild. Over 40,000 tons a year are now manufactured in North Africa.

At Port Lyautey, 80 miles north of Casablanca, Morocco, a new esparto chemical pulp mill was built with U. S. A. funds and mixed with straw for 20,000

tons annually of paper of various grades, including newsprint. Another mill at Baba Ali, near Algiers, built four years ago, expects to quadruple to 100,000 tons in a few years. Some 300,000 tons a year of esparto have been shipped to 40 mills in Britain from Tunis, Algeria and Morocco.

Meanwhile new sources of esparto grass supply for Britain have been developed in Libya. The Cyrenaican Esparto Co. Ltd., started in 1951 shipping to English and Scottish mills and this increased in 1952.

Altogether about 50,000 tons a year of paper are made in North Africa, from paperboard and paper waste, esparto and some from alfalfa pulp. Papyrus grass and cotton stalks are being tested for paper in Egypt.

## EGYPT

### Mills Being Built

(Egypt's 21,000,000 people use an average of 8 lbs. of paper per person per year.)

TWO PAPER MILLS are under construction in Egypt, according to word from Dr. H. T. Topouzada, director general of the department of industry, Ministry of Commerce and Industry, in the capital at Cairo.

Sandy Hill Iron & Brass Works (U.S.A.) in recent years experimented with cotton stalks from Egypt as a possible paper source.

From Dr. Topouzada comes this report: "Demonstrations have been instituted by a local paper mill to produce printing paper from a furnish of rice straw pulp and a small percentage of imported wood pulp.

"Two paper mills are under construction. One is for the purpose of producing cheap wrappers and kraft from straw pulp and waste paper. The other is expected to produce printing paper from a mixture of straw pulp and rag pulp.

"Preliminary results obtained from the trials which have been carried on with papyrus grass are encouraging.

"The local output of wrappers for the year 1950 is estimated at 12,000 tons, 4,400 tons of board and 1,800 tons of printing paper.

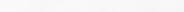
"There were no considerable changes in local production during 1951 and 1952."

## Venezuela Paper School

A South American university is modeling its new pulp and paper laboratory after the one at the University of Maine.

Prof. Lyle C. Jenness, head of the department of chemical engineering, at Maine, greeted Prof. Marshall R. Turner, and two of his students from the Universidad de Los Andes in Venezuela on a visit to the Maine laboratory in order to secure information about the equipment and the layout of the apparatus.



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CHIPPERS — WOOD ROOM EQUIPMENT

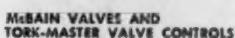


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## **LANGDON TYPE COLLAPSIBLE WINDING SHAFTS**



## AUSTRALIA

### Expansion Opportunity

(Australia's 8,300,000 persons use an average of 65 lbs. of paper per person.)

**EXPANSION NOW** under way in Australia will bring pulp and paper capacity to practically double the figure attained at the close of World War II. While many projects are under way, and only one or two existing mills have not shared in the new construction, most significant are probably (1) establishment of a board mill in Queensland and (2) expansion of the writing and printing paper mill in Tasmania.

Expansion of Australian Paper Manufacturers Ltd. at its various mills will increase overall production of boards and wrapping papers. Consumption in the Australian market is well ahead of production, and the potential for increased use of container boards and box boards is striking.

First substantial move to manufacture these in Queensland has been made with Australian Paper Manufacturers' new board mill near Brisbane, close to waste-paper supply and major markets. A pulp

#### AUSTRALIA—GENERAL

	No. of Mills	Value of Materials Output (In Thousands of Dollars)	Value of Output (In Thousands of Dollars)
1951 . . . . .	14	6,336	\$23,300
1952 . . . . .	14	6,750	\$24,000

#### AUSTRALIA—PAPER (in Tons)

	Production Newspaper	Total All Board Paper & Board	Wrapping Paper Imports Prod.	Wrapping Paper Imports Prod.
1946-47 . . . . .	31,734	76,563	185,870	
1947-48 . . . . .	31,335	83,213	192,320	
1948-49 . . . . .	30,260	85,307	193,460	
1949-50 . . . . .	30,472	99,519	205,196	
1950-51 . . . . .	33,000	103,000	220,000	
1951-52 . . . . .	33,000	110,000	235,000	
	<i>Paperboard Imports Prod.</i>		<i>Wrapping Paper Imports Prod.</i>	
1942-43 . . . . .	770	70,246	1,000	40,000
1948-49 . . . . .	23,602	85,307	18,000	16,543
1949-50 . . . . .	17,403	99,519	n.o.	30,806
1950-51 . . . . .	42,400	103,000	n.o.	36,229
n.o.—not obtained				

#### AUSTRALIA—WOODPULP

(In Thousands of Short Tons)

	Chemical Prod.	Mechanical Prod.	Chemical Imports	Mechanical Imports
1949 . . . . .	63	44	38	3
1950 . . . . .	68	37	38	1
1951 . . . . .	75	46	40	2
1952 . . . . .	77	53	47	6

Source: U. S. Pulp Producers Assn. & Can. P. & P. Assn.

mill to utilize hardwoods may be added.

Associated Pulp & Paper Mills Ltd. decided some time ago to establish a two-machine writing and printing paper and chemical pulp mill on the Australian mainland, but early last year the company chose Burnie, Tasmania, as the location instead, the mainland project being held in abeyance. Tasmania is said to be approaching the limit of its forest productive capacity.

Australia's newsprint capacity reached 80,000 tons a year in mid-1951, and this

built at Launceston, Tasmania, will be a step towards integration of a medium-scale logging and sawmill operation there, carried out by the same company. Australia offers a promising potential, as its consumption of container board, box boards and miscellaneous cardboards is only 10 lb., 16 lb. and 5 lb., compared with 69, 38 and 40 lbs. respectively in the U.S.

High capital cost per output ton required to establish a modern mill and the great output needed for economic operation and the relatively slow turnover of capital invested, have been deterring factors at this time.

The Australian industry began to make substantial gains when research enabled eucalyptus regnans and eucalyptus delegatensis (or gigantea), the mountain ash and alpine ash eucalypts of southeastern Australia, to be used commercially for chemical pulps and groundwood.

For newsprint groundwood, at present state of knowledge, the 80 percent eucalypt portion of the furnish requires the "ash" type as the major constituent, and trees that are mature but not overmature. The eucalypts, being hardwoods, make short fibered pulp, and for many furnishes require proportioning for tear and fold strengthening with long-fibered pulps, mainly imported chemical pulps. These imports have been from Canada and Scandinavia, but will be largely met by pine pulp from New Zealand within a few months.

In its application for an increase in the existing tariff on imported printing papers to insure maximum operation of its own machines, the Associated Pulp & Paper Mills Ltd. and associated companies, including Thomas Owen & Co., Ballarat Paper Mills Pty., Ltd., and Papyrus Pty. Ltd., pointed out that the industry differed from that of, say, the United Kingdom, where most of the paper was made from imported pulp. Other things being equal, it was explained, the industry in Australia was more heavily capitalized per ton of output. Output of paper had risen until it now stood at over 32,000 tons a year.

Total capital invested in the industry and associated industries operated through the companies' subsidiaries was approximately \$27,500,000, apart from additional working funds, and another \$4,750,000 was being spent on current expansion. In three years the above companies will have nine paper machines operating at Burnie, producing over 50,000 tons a year. The company now has four machines at Burnie with output of 32,000 tons of fine, printing, writing, coating and parchment paper.

Output of the company's eucalypt pulp now approximates 25,000 tons and is still rising. The pulp mill is in process of expansion and a new continuous digester, producing 70 tons a day will be delivered in 1954. New paper machines with combined capacity of 15,000 tons are being built in Scotland.

Current modernization at Australian Paper Manufacturers Ltd., biggest overall producer in the country, gives the company an output of 225,000 tons, at six mills.



PULPWOOD FROM BOOLA BOOLA FOREST in Australia being loaded on Diesel driven truck for Australian Paper Manufacturers Ltd.



ONE OF AUSTRALIA'S LARGEST MILLS—Integrated operations of Associated Pulp & Paper Mills Ltd., Burnie, Tasmania.

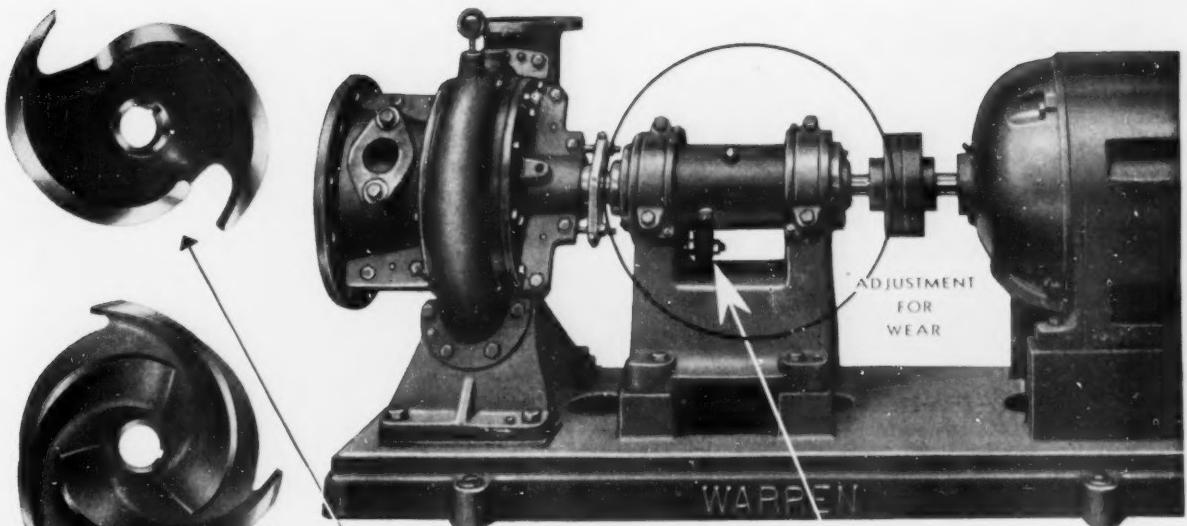
will probably remain the peak for some time. It represents average output from wood resources available to Australian Newsprint Mills Ltd. At maximum, this organization would produce almost 50 percent of the restricted usage of newsprint in Australia, assuring a good market for New Zealand mills now under construction.

Thomas Owen & Co. (Australia) Ltd., a subsidiary of Associated Pulp & Paper Mills, will make vegetable parchment, greaseproof and glassine. The plant is now being equipped and probably will not be in full operation until 1954, although parchmentizing of body paper from the adjoining A.P.P.M. mill started last year.

Australian Paper Manufacturers Ltd. has equipment on order to convert one of its machines to lightweight crepe tissue.

The gradual increase in Australia's population, its industrial growth, and distance from producing countries, has encouraged Australian capital to invest in expansion.

A leading United Kingdom paper manufacturer (reported to be Bowater's) has contemplated establishment of a mill for high grade writing and specialty papers. A small container mill now being



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The heart of a pump is the IMPELLER, and in each type and size of Warren Stock Pumps FIVE different impellers are available, each designed specifically for five different operating services, yet they all fit the same size and type of pump.

Each of these impellers "washes its own back" . . . in other words, the Eductor Vanes with which they are equipped, and pioneered by Warren, keep the space back of the impeller pumped free of fibre or grit, reduce pressure on the stuffing box and insure long packing life.

Another feature of Warren Stock Pumps is the adjustment for wear between open impellers and suction liners. Inevitable wear increases the clearance between these two parts, and adjustment to reduce this clearance is provided by a simple adjustment screw. This results in less frequent replacement of liners.

The foregoing, and many other special features, make it advisable to specify:



Back of typical Warren Impeller showing Eductor Vanes

PP-25

# WARREN PUMPS

**WARREN STEAM PUMP COMPANY, INC., WARREN MASSACHUSETTS**

1953 Review Number

PULP & PAPER

141



## NEW ZEALAND

### Two Big Developments

(New Zealand's 2,000,000 people use an average of 124 lbs. of paper per person per year.)

THIS YEAR'S DEVELOPMENTS in New Zealand are largely the story of Tasman Pulp & Paper Co. and N.Z. Forest Products, Ltd., both carrying out large-scale operations to make much fuller use of the

country's forests and ease the pulp and newsprint supply situation in Australasia.

The Kinleith kraft pulp project of N.Z. Forest Products represents another step in integration of this progressive company which already rates as the largest producer in the Southern hemisphere.

The Tasman Pulp & Paper undertaking, however, is wholly new and promises to be one of the most significant taken by industry in New Zealand. Site of the mill is at Te Tako and the unit now under construction, for the manufacture of newsprint, will cost \$42,000,000.

Main contract has been awarded to Fletcher-Merritt-Raymond, Ltd., a joint enterprise representing Fletcher Construction of New Zealand, Merritt, Chapman & Scott of New York, and Raymond Concrete & Pile Co., New York. Sir James Fletcher is chairman.

Although a private enterprise, the cost is being guaranteed by the New Zealand

**CHARLES D. SCHULTZ,**  
head of C. D. Schultz & Co., Vancouver, B.C. (Canada), and Seattle (U.S.A.), consulting forester firm, which has made extensive forest surveys in New Zealand for new Tasman Pulp & Paper Co.



government, which has been interested in encouraging profitable exploitation of the pine forests of Kaingaroa. A sawmill and 36,000-ton chemical pulp mill are to be built as well as a newsprint mill.

Of interest to Canada and the U.S. is the fact that many consultants from North America have been engaged. Sandwell & Co. of Vancouver, B.C., are consulting engineers for the mill, and much forest reconnaissance has been carried out by C.D. Schultz & Co., of Vancouver and Seattle. Natural steam available in volcanic rocks near the mill will be utilized ingeniously.

Contracts have been placed for a Walsley four-roll newsprint machine from the United Kingdom, and Harland drives from that country. Choice of other equipment was to be made during the 1953 summer. About 75 percent of equipment will be from the sterling area.

Full production will probably be reached late in 1955, when a production target of 75,000 tons annually has been set. The company is raising more than \$15,000,000 from the U.S. Export-Import Bank, \$23,000,000 in Britain and the balance in New Zealand.

E. S. Barton, formerly of Sandwell & Co., has been appointed resident engineer, and New Zealanders will be trained for most key posts.

Tasman Pulp & Paper will be an important contributor to Australia's newsprint as Australia's own capacity is about 85,000 tons a year, mostly in Tasmania, although in 1952 owing to power shortages that island was able to manufacture only about 34,000 tons. Imports of 185,000 tons filled the balance of demand of 217,000 tons—Australia plus New Zealand.

Of total newsprint imported into Australia and New Zealand in 1952, Canada

## Lawrence BALL CHECK VALVE

### RUGGED . . . DEPENDABLE . . . TROUBLE-FREE!

In use since 1933 in the pulp and paper industry, where other type check valves fail when used with caustic solutions.

Ball rolls up on inclined guides, leaving a minimum of restriction for the fluid. Inclined race eliminates the ball ringing the seat.

Valve has removable seat.

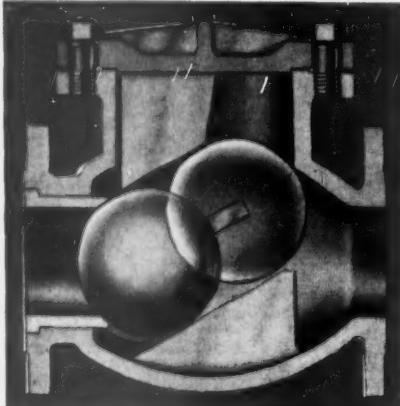
Ball is cast hollow and is precision ground to accurate size.

Cut-away view showing inclined race and ball in closed position. Ball in phantom, or in open position, leaving a minimum of restriction.

Exterior view of Lawrence Ball Check Valve. Note sturdy, simple construction.

Valve is obtainable in cast iron, steel, bronze and stainless steel and also in combinations of cast iron, steel or bronze with stainless steel ball and seat.

Available in sizes 2 inches to 8 inches. Flanges to customer's requirements or specifications.



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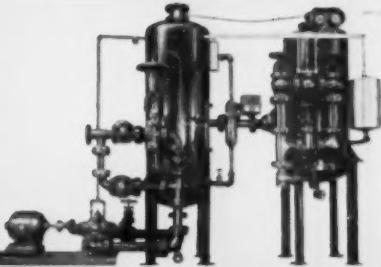
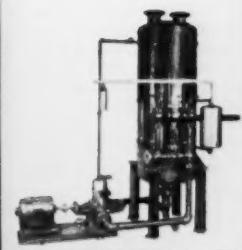
### NEW ZEALAND—WOODPULP

	Production tons	Imports tons	Consumed paper and board mills tons
1940	5,881	7,090	12,867
1949	21,438	14,523	29,772
1950	23,714	9,598	32,901
1951	24,612	7,595	31,462
1952	31,000	10,500	41,500

### NEW ZEALAND—PAPER & BOARD

	Wrapping Paper tons	Cardboard tons	Fibre Board sq. ft. (thousand)
1940	6,253	6,620	—
1945	6,335	14,284	21,958
1947	7,619	13,329	30,416
1949	8,596	14,175	39,624
1950	7,111	14,676	43,283
1951	7,541	17,320	47,766

(Latest available)



## medium

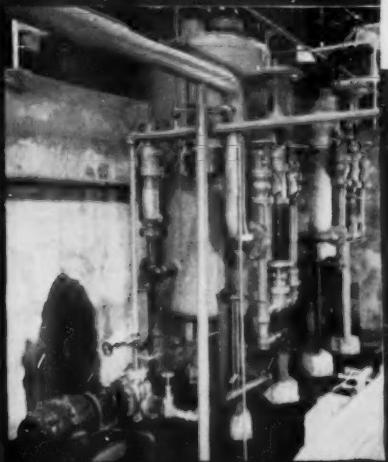
10% to 30% production increase.

Positive reduction in steam costs—even with tonnage gains.

Improved quality. Uniform drying.

Less cockle or curl.

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Today practically all of our large paper machines are 100% Fulton dryer drainage equipped—a great majority of the medium size machines have Fulton Systems and the smaller and older machines are fast installing Fulton Systems. As a matter of fact, Fulton Dryer Drainage is being specified by all of today's paper machine builders.

Compared to the potential increase in

dryer speed and tonnage gain—the quality step-up—the steam economy—the modest initial cost of Fulton equipment is literally insignificant. It should, therefore, surprise no one that Midwest is able to tally the installation of 1000 Fulton Systems—in new mills, old mills, large mills, small mills.

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supplied 74,028 tons. Sources other than Canada accounted for over 50 percent of the 1952 imports.

Kinleith, where N.Z. Forest Products is pushing its pulp mill to completion, is 144 miles south of Auckland. The company has invested more than \$17,000,000 in the enterprise, which will make good use of the company's 176,000 acres of Monterey pine (*Pinus radiata*).

It will produce a maximum of 45,000 tons of unbleached sulfate pulp annually, 12,500 tons earmarked for export to Australia, for newsprint furnish at Australian newsprint mills, Boyer. Kraft paper-production will be 25,000 tons yearly, mainly for multiwall bags and containers at the company's Auckland plants.

Average daily output of sawn timber at Kinleith is 180,000 bd. ft. daily (360 cords). Annual sawn timber output from the company's four sawmills is 60,000,000 bd. ft., largest for any single organization in the Southern hemisphere.

Water supply for Kinleith pulp and paper mills will be pumped through 5½ miles of 32-in. diameter spiral-welded pipes delivering 14,500,000 gallons daily from a tributary of the Waikato River, New Zealand's largest.

**AIR VIEW AT LEFT** shows part of housing development at TOKOROA on North Island of New Zealand for New Zealand Forest Products Ltd.'s Kinleith kraft pulp and paper project, utilizing 100,000 acre pine forest—largest man-made forest in South Pacific. This is one of New Zealand's two big developments. **AT RIGHT** is another air view

**SITE OF NEW ZEALAND'S FIRST NEWSPRINT MILL** at Te Taupo, North Island, is shown on this map, which also indicates location of Kaingaroa State Forest and relative distance from two main centers of population, Auckland and Wellington. The mill is being built by Tasman Pulp & Paper Co. at cost of \$42,000,000.

N.Z. Forest Products Ltd. at Auckland also makes "Pinex" fiber building board, boxes and shooks. A corrugated container plant is to commence operation this year.

Tokoroka, a rapidly growing township, 4½ miles north of Kinleith, is the site of the company's housing project. Of 600 houses planned, 400 have been completed.

"Five years have been spent in investigation preliminary to establishment of integrated timber, newsprint and sulfate mills to handle annually, up to 28,000,000 cu. ft. of logs from Kaingaroa state forest (largest man-made forest in the South Pacific)," states Alex. R. Entrican, director of forestry for New Zealand. "There are large areas of exotic forest which have reached the stage of utilization, such as Kaingaroa. In the indigenous forests most of the forest left is owned by the state, and the policy is to ration its release to prevent early cutting-out. The function of the exotic forests is to offset this decline."

Auckland Paper Mills has been incorporated in Auckland with capital of \$1,250,000 to manufacture tissue. Major shareholders are Westminster Paper Co. of New Westminster, B.C. (Canada), Caxton Printing Works of Auckland and Neill Cropper & Co. of Auckland.

Among mills not previously referred to are Whakatane Board Mills at Whakatane, manufacturers of box, carton and container board, and New Zealand Paper Mills at Mataura, which produce wrapping papers, kraft papers, toilet tissues, etc.

Estimated domestic production in 1952 (long tons): Wrapping and miscellaneous kraft, 4,000; bag reels, toilet paper and miscellaneous, 3,200; box and container, 11,000. Imports in 1952: Newsprint, 33,000 tons; printing and writing grades, 9,100 tons; box and container, 9,400; chemical pulp, 10,500; kraft liner board, 6,600; corrugating paper, 3,100 tons; kraft sack paper, 5,000 tons.

## HAWAII Bagasse Use Hopes

(Hawaii's 500,000 people use about 50 lbs. of paper per person per year.)

**THE HAWAIIAN SUGAR PLANTERS ASSOCIATION**, supported by 28 plantations, are hopeful of bagasse paper pulps for their residue, possibly by 1954. This would be largely for export. Their research endeavors began in 1951 and the government laboratories in the U.S., the Institute of Paper Chemistry in Appleton, Syracuse University and the Crown Zellerbach laboratories in Camas, Wash., have assisted the association.

The idea of making newsprint from the bagasse has been given up, it was indi-



WM. A. ROBINSON, formerly in Southern U.S. mills, Atenuique, Mexico, and with Fibreboard in East Antioch, Calif., is doing bagasse pulp research in Hawaii for Sugar Planters.

cated by A. G. Budge, association president.

Pioneer Flintkote Co. is the only mill in Hawaii which now exists, making a wallboard from bagasse at Hilo.

Said the 1953 report of the Sugar Planters group:

"Newsprint possibilities, as far as local production is concerned, are negative. Though the basic difficulties might be overcome—that is, the stiffness and opacity that characterize bagasse papers—local volume would not be sufficient to support an economic-sized plant, and export to the mainland seems impractical."

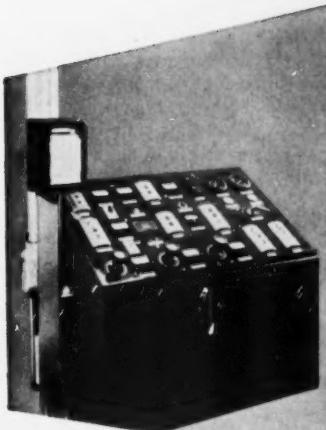
**showing kraft pulp and paper mills under construction for N.Z. Forest Products Ltd. at KINLEITH, New Zealand, with administration block in middle. A sawmill, 18,000 sq. ft., and log intake are at extreme left, and garage for 300 vehicles is in front of air strip at upper left. Construction workers' homes in foreground.**



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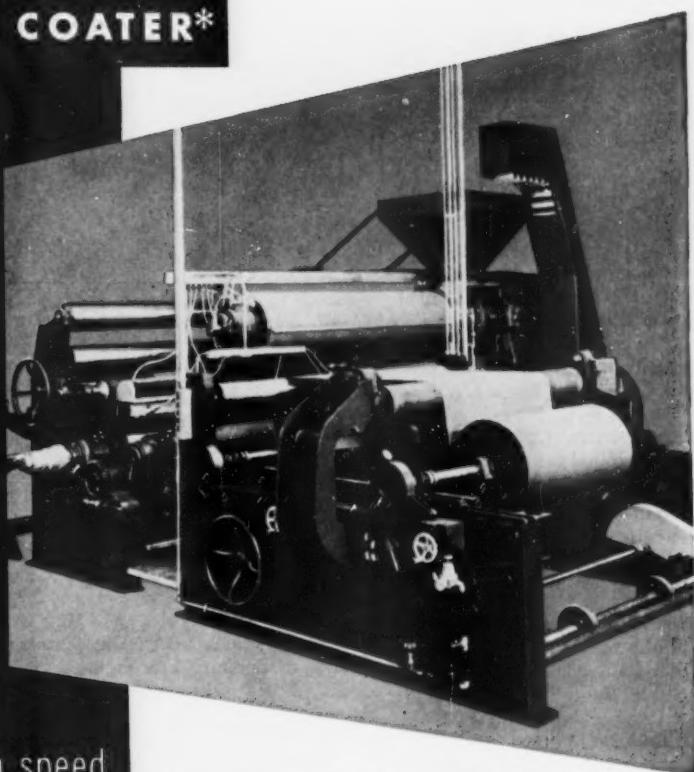
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PULP & PAPER

1953 Review Number

145



Machine in operation at H. P. SMITH PAPER COMPANY, Chicago, Ill.

Another in the series of Frank W. Egan & Company developments and installations, this is the latest Extrusion-type coater for applying polyethylene at speeds up to 1000 FEET PER MINUTE.

The polyethylene is extruded from a die and the extruded film is laminated to the paper between the nip of two rolls.

This coater incorporates automatic splicing unroll and reroll equipment for high speed operation.

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## LATIN AMERICA

### Expansion Continues in Many Latin American Mills; Cetico Tree Holds Promise as New Papermaking Fiber

#### BRAZIL Set New Records

(Brazil's 52,000,000 persons use an average of 14 lbs. of paper per person per year).

**BRAZIL**, ONE OF THE TWO biggest paper-making nations in Latin America, broke its own records for paper production in 1952 by manufacturing a total of 313,000 short tons in some 50 mills, which was 44,000 tons over its 1951 mark and 38,000 over 1950. It was three times its production in 1938.

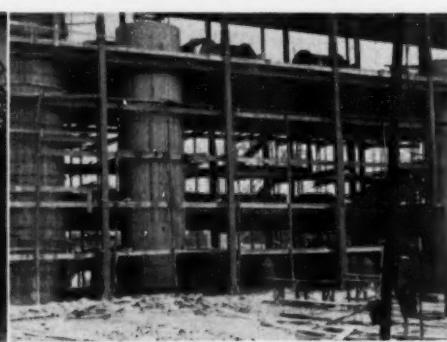
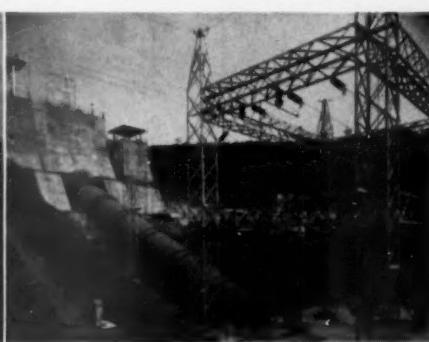
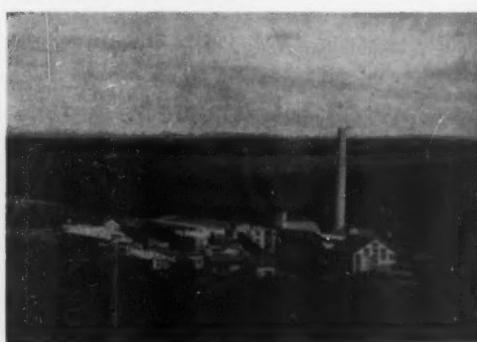
Two new Fourdrinier machines are being made in the shops of Bagley & Sewall Co., Watertown, N.Y., for two different Brazilian companies. One, a 154 in. machine, will be shipped late this year to Industries Klabin de Parana de Celulose S.A., which a few years ago cut out of the wilderness at Monte Alegre, in Parana, a site for a new diversified pulp and paper industry and for a new city, as well.

The other machine is a 126 in. Fourdrinier being built for Refinadora Paulista S.A., in Sao Paulo, Brazil, 300 miles from Rio. Another Bagley & Sewall 145 in. Fourdrinier was shipped in 1951 to Simao Mills in Sao Paulo state. Also a 92 in. Yankee Fourdrinier was made by Sandy Hill Iron & Brass Works for the Mendes mill of Papeis E. Cartonagem C.A.

One of the largest sugar producing companies in Brazil, Refinadora Paulista S.A., is completing a new high grade bleached

**BRAZILIAN VIEWS OF MILLS AND CONSTRUCTION:** Left—General view of pulp and paper mills of Industrias Klabin de Parana de Celulose S.A., created out of pine wilderness in Parana at Monte Alegre. Middle—Hydroelectric power station for Industrias Klabin.

Right—Continuous bleaching towers under construction for new Celdecor process bagasse pulp mill of sugar company, Paulista Refinery.



#### BRAZIL—PAPER

(In Thousands of Short Tons)

	Paper	
	Produced	Imports
1938	117	55
1946	172	79
1947	188	93
1948	204	70
1949	220	58
1950	275	75
1951	269	58
1952	313	60

	Woodpulp			
	Produced		Imports	
	Chemical	Ground-wood	Chemical	Ground-wood
1950	50	44	145	12
1951	80	110	143	0
1952	80	110	110	0

bagasse pulp mill adjoining its sugar mill in Monte Alegre in Piracicaba, Sao Paulo state. It will make 24 tons a day which will be used in a 40 ton fine paper mill, also being projected. The pulp mill will have its own electrochemical plant producing chlorine, caustic soda, chlorine gas and bleach liquor by electrolysis of common salt with Casa type cells carrying 3,000 smps. Cellulose Development Corp. Ltd., of England, are engineers and builders of the pulp mill. It is an interesting example of a sugar mill, instead of a paper company, taking the initiative.

From Dr. L. Rys, general manager of Industrias Klabin, was received this information for the WORLD REVIEW NUMBER on their operations:

"Our total daily production is at present over 200,000 metric tons (220,000 short tons). We have five grinders, four Kammrys, one Roberts and another Roberts is coming. Our pulpmaking consists of 100 metric tons a day sulfite mill making bleached pulp and about 40 tons a day semichemical mill working on hardwoods. We make our own chlorine and caustic.

"We are expecting a new Fourdrinier from Bagley & Sewall for making better quality of paper which shall start the end

of this year. The production of this machine is going to be between 60-90 metric tons of paper daily. It has the most modern equipment and a three stage continuous beating system.

"Our hydroelectric power was increased two years ago to 22,000 KW and we have about 4,500 KW steam power for emergency case."

Many of the Brazilian paper mills were built in recent years at about the same period of time and many are dependent on imported pulp. The Klabin company, headed by Samuel Klabin, is in a fine pine country. But it had no railroad into the mill at first and heavy equipment, including a big Yankee dryer, had to be brought over mountain roads. A fleet of 100 trucks were used. The mill is up the far reaches of the Parana River, in a remote part of Brazil. It makes all kinds of pulp and papers. The Klabin interests also have an older mill in Sao Paulo with four Fourdriniers making printing and fine papers.

Shartle Dilts Hydropulpers and refining are in these mills. Last year the latest Hydropulpers went to Polpa de Madera "Cipolma" in Sao Paulo and Adamas do Brasil S.A.

Nacional de Papel S.S., a Rio de Janeiro division of "Cipolma," had one of the first General Electric electronic machine drives, installed a few years ago. Another mill of interest is Industria de Papel Leon Feffer S.A., in Sao Paulo, which has one cylinder-Fourdrinier machine with parts from nearly every machine builder. The fabulous Matarazzo industrialist family also has a mill. And Melhoramentos Mill in Sao Paulo is part of a printing establishment. Industrial de Papel Pirahy makes cigaret and carbon paper with Carao fiber and flax in a very fine mill. J. D. Haskell, of Black Clawson Co., provided these interesting facts as a result of his recent trip there.

Noble & Wood Co.'s Agitator reported about 44 percent of Brazil's paper production in 1952 was newsprint. Most imports

NEW ENGLAND—one in a series of scenes where Appleton Wires serve the paper industry.



PRACTICALLY everywhere you find a paper mill, you will find Appleton Wires. Though you ordinarily think of New England as the birthplace of new world traditions, rugged coastlines and industries of the sea—such as lobstering—it also has 277 paper mills, most of which know that *Appleton Wires are Good Wires!*



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 Enschede, Holland  
 Bombay, India  
 Teheran, Iran  
 Tel-Aviv, Israel  
 Milano, Italy

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 Porto, Portugal  
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 Barcelona, Spain  
 Norrkoping, Sweden

were newsprint. The newsprint division of the industry is growing about 16 percent yearly.

A new company, CA. Paulista de Celulose, is to make cellulose from eucalyptus for the first time in Brazil and the Brazil National Institute of Technology has made experimental paper from sisal fiber. Cotton linters also are used experimentally. But woodpulp seems to be the most economic and plentiful source.

The FAO of the United Nations has forecast that the Amazon, now a fiscal liability to Brazil, can be self-supporting in ten years as a source of forest and agricultural products.

## ARGENTINA

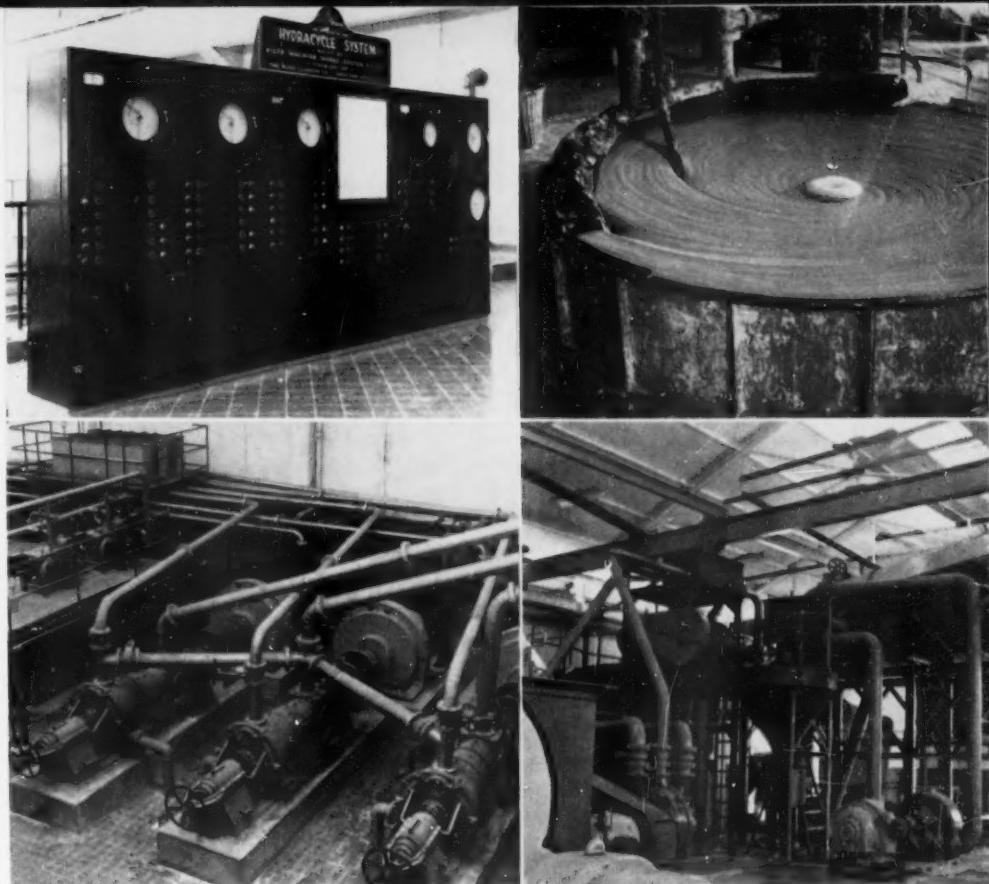
### Two More New Mills

(Argentina's 18,000,000 people use an average of 35 lbs. of paper per person per year.)

THE PAPER INDUSTRY and paper usage in Argentina during 1952 and 1953 have undergone important changes. The Peron government has restricted newsprint consumption to only 77,000 short tons, and only a year ago the first machine made especially for newsprint had started up at Celulosa Argentina, S.A., making 35,000 tons a year.

Newsprint imports had totalled 119,000 short tons in 1951, 155,000 in 1947 and 177,000 in 1937. Potentially, consumption of newsprint would be 242,000 tons, it is estimated. Total imports of paper were 212,000 short tons in 1951 and ran as high as 276,000 in 1947 and in 1937. But with efforts to develop the nation's own paper industry, imports are going to be greatly restricted under new regulations, limited to special papers, such as "illustration" paper, etc.

**DORR SYSTEM** for processing water at Juan Ortiz Mill of Celulosa Argentina, 200 miles above Buenos Aires on the Parana River, largest kraft process mill in South America. Two Dorr Hydro-Treators remove turbidity, color and algae from 25 M.G.D. of river water. One shown here is preceded by two Dorr flash mixers.



Woodpulp imports were up to 124,000 tons in 1952, as compared with 112,000 in 1951, and production remained steady at about 33,000 tons. Bamboo, straw and even cotton linters also are used for pulp and paper.

Two entirely new plants have been built in Argentina and started up in 1952—"Victoria" in the city of Eva Peron and "Papelera Rio Parana S. S." in Campana, province of Buenos Aires. They will make cardboard and printing papers.

Julio Cesar Lera, vice president of Francisco Lera Co., a financial enterprise of Buenos Aires, points out that production has been greatly reduced in the past year, even with the expansion, and he cited the two new mills built and summarizes the industry potential as follows:

"Actually there exist in Argentina 34 paper mills. Principal ones with capacities and products are:

Celulosa Argentina, Bs.Aires, 66,000 short tons, all kinds of paper & boards;

Top left: Black-Clawson supplied this remote control for Sharle Hydrapulper at La Papelera Argentina S.A., whose Bernal mill, near Buenos Aires, has been greatly enlarged. It now has eight machines. Lower left: Three Sharle Miami No. 1 Jordans are also new at this Bernal Mill.

Top right: A Sharle-Dilts Hydrapulper that is really full right up to the brim at Celulosa Argentina's Mill at Zarate. The latest of several Hydrapulpers here was supplied Black-Clawson's B-C International, British subsidiary. Lower right: Filler cleaning system at the Bernal Mill includes Hydrapulper, Grit Remover, Disintegrator, two Classifiers and Se-lectrap Screen.

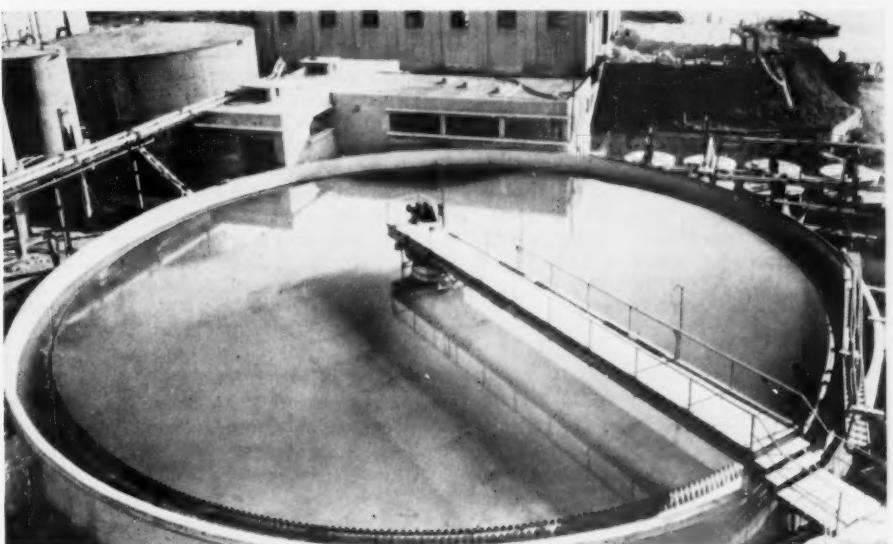
incl. newsprint; Papelera Argentina, Bernal, 33,000, wrapping, sack, toilet, board; Raffaele Hnos., Buenos Aires, 13,000, writing and wrapping; Denti Ltda., Buenos Aires, 7,200, wrapping and writing; Papelera Pedotti, Beccar, 10,000, writing, wrapping, corrugated board, fine boards, glassine, greaseproof; Zarategui, Peralta & Cia., Bs.As. 7,000, wrapping and sulfite; Cia. Gral. Papelera de Buenos Aires, 6,600, wrapping; Papelera del Plata, Wilde, 5,000, wrapping and toilet.

"The remaining mills produce all together 43,500 short tons of writing, bag, wrapping paper, kraft or sulfite, cigaret, chip board and board."

The "Celulosa Argentina S.A." is now producing about 1,500 tons a month of newsprint, but the machine's capacity is double that figure.

The Argentine Institute of Promotion of Interchange will import a total of 20,000 short tons of newsprint from Sweden, Norway and Finland, of which 11,000 will come from Finland. This, plus the Celulosa Argentina mill's production and last year's stocks, will supply 1953 allowable newsprint.

At the Bernal mill of La Papelera Argentina S.A., two new machines made by Sandy Hill Iron & Brass Works, Hudson Falls, N.Y., brought its total number of machines recently to eight. A very highly praised modernization program has been





## LATIN AMERICA

carried on at this mill, just outside of Buenos Aires, according to visitors. Ricardo Radaelli is general manager, and headed up the work.

The machines are Fourdrinier and multi-cylinder. Ahead of them are new Shartle-Dilts stock preparation Hydracyclic systems all remotely controlled from a mezzanine floor looking over the entire mill. A Shartle-Dilts Hydrapulper and cleaning system is installed.

The new Rio Parana mill, previously mentioned, is a part of the big company, Papeltex Argentina S.R.L., under Juan Zamboni, general manager. It is on the banks of the Parana above Buenos Aires. A bleached straw pulp mill and Shartle Hydrapulpers and Hydrafiners are installed. It has room for a second machine in its new machine room and its general planning and layout are very well done. It will make pine chemical pulp.

The Juan Ortiz mill of Celulosa Argentina has a well integrated operation now, with bleached straw plant serving both the old and new mills. Hydrapulpers slush down sulfate and sulfite pulps.

## MEXICO

### More Mills Built

(Mexico's 26,000,000 people use an average of 16 pounds of paper per person per year.)

EXPANSION OF THE MEXICAN INDUSTRY has continued although it experienced a slump in production in 1952. Several new mills have been built or are being built.

The San Rafael Paper Mfg. Co., largest in the country, and headed by Jose de la Macorra II, is installing a new kraft mill to add to its unbleached sulfite and groundwood production at San Rafael, south of Mexico City.

A new bleached cane bagasse pulp mill, Fabrica de Celulosa "El Pilar," at Ayotla, is due to start up later this year. This is a new subsidiary of the Coyoacan Paper Mfg. Co., whose general manager, Don Tomas Mier, died of a heart ailment March 27, 1953. As this issue went to press "El Pilar" was beginning to install machinery in new buildings.

Cartonajes Estrella, at Atzcapotzalco, suburb of Mexico City, began operations on a second hand 6-vat board machine in Dec. 1952 and expected to reach a daily production of about 38 short tons a day of fine boards. It has a new Combustion Engineering boiler. Joseph E. Cotter is manager.

Celulosa de Chihuahua, S.A., a new company which has engaged Snia Viscosa, Italian engineering firm, with 50 percent government backing for a dissolving pulp mill, was still going ahead with its project in that state. Rafael F. Vallina was named new director general in March 1953.

## ARGENTINA PRODUCTION

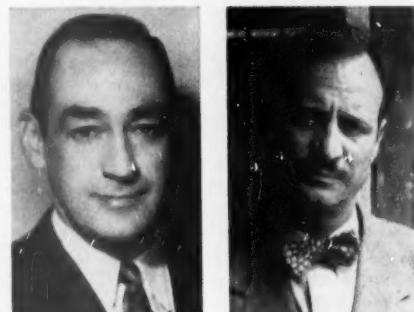
(In thousands of short tons)

	Wood Pulp	Paper- Boards	Printing, Book, Writing	Grades Paper & Board	All Paper
1950	32	70	57	232	
1951	32	80	65	224	
1952	33	62	51	185	

## ARGENTINA PAPER IMPORTS

(In thousands of short tons)

	Board Wrapping	Writ- ing	News- print	All Paper
1937	23	32	34	177
1947	33	43	43	276
1948	35	25	27	223
1949	49	31	29	240
1950	34	30	35	211
1951	20	27	43	212
1952	(not available—imports greatly restricted—newsprint consumption restricted to 70,000 tons annually.)			



CARLOS GARCIA ROBLES (left), Pulp and Paper Consulting Engineer, Mexico City, who also represents U.S. equipment lines, again sent news of the Mexican industry this year for this annual WORLD REVIEW.

JESUS E. ZAMBRANO (right), President and Gen. Mgr., Empaques de Carton Titan, S.A., now a two-machine paper mill subsidiary of the biggest brewery in North America (Anheuser, Busch is first) at Monterrey, Mex., which makes Montezuma and other famed beers. It has done 10 years research in fibers and uses bamboo, wheat straw, jute, etc.

Aserraderos Gonzales Ugarte, a lumber firm for over 40 years in Chihuahua with extensive timberlands, also plans a mill in that state—the first newsprint producer in Mexico. It plans a groundwood mill, to integrate with lumber operations, and a machine for newsprint and other specialties. Jorge R. Roldan is the head of its pulp and paper department (P.O. Box 76), Chihuahua City.

Productora de Papel S.A. Monterrey, Mexico, owned by the Garza Brothers, many years in lumber business there, started up its entire new mill in 1952. It was engineered and supplied by Sandy Hill Iron & Brass Works (U.S.A.) with rebuilt Fourdrinier, selective drive. It has a Shartle Hydrapulper for waste paper. It was visited by a PULP & PAPER editor during construction. Now is making about 45 short tons daily of 9 pt. and recovered kraft liner. The Garza Brothers are considering a second machine.

Empaques de Carton Titan, S.A. a subsidiary of one of the biggest brewery companies in North America, started up its new board machine in 1952 in its Monterrey plant, according to Jesus E. Zambrano, president. Backed by the big

Cuauhtemoc brewery interests, which began making their own corrugating beer boxes in 1926, and also make bottles, caps, etc., this subsidiary devoted 10 years to research in local fibers. It uses straw and jute for corrugating, and waste, bamboo and knapf (canamo) for pulp. It also makes its own hide glue and gum paper.

Sandy Hill provided the board machine (80 in.) for liner and boxboard; Shartle Brothers Hydrapulpers (3 in all, one for broke); Sandy Hill, the machine drive and winder, etc., the latter with Reliance drive; Foxboro controls; Biggs rotary digesters; General Electric turbines (3); Babcock & Wilcox and Combustion Engineering boilers. It also has a Fourdrinier machine.

El Fenix Paper Co., in Mexico City, added a Masson-Scott (Brit.) super cutter and winder this year in its fine paper mill where a Harland drive and Ross Engineering hood were among additions a year ago.

Cartonera Moderna, S.A., in a new plant in Mexico City, is installing a 62 in. cylinder machine with expected production of 45 tons daily by end of 1953.

La Aurora S.A., also of Mexico, where it is allied with a big stationery and school supply firm, is building a new mill at San Bartolo Naucalpan, in the outskirts of Mexico City, which was 75 percent completed this spring, and new German equipment and other equipment from the old mill in the heart of the city should be installed by the year-end. Carlos Kinkel, manager, heads this firm.

Sonoco de Mexico, owned by Sonoco Products (U.S.A.), and Kraft S.A., are two entirely new mills near Mexico City, which started up early in 1952, described later in this section.

Viscosa Mexicana, at Zacupu Michoacan, added a Shartle Hydrapulper and other Shartle equipment for pulping of cotton linters for rayon.

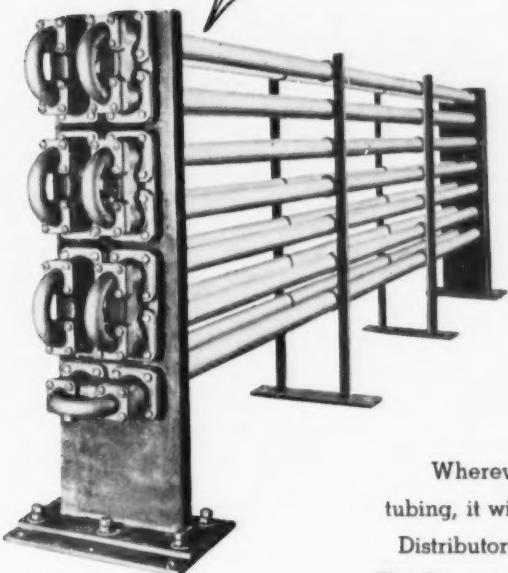
Last year we reported startup of the new hardboard plant in Mexico, Fibracel, S.A., at Valles, first of its kind in that country with American Defibrators and Sandy Hill Fourdrinier machine.

The big three of the industry—San Rafael with its two mills; the Lenz enterprise (two mills) and the only big mass-producing mill, Atenquique, built during the war and making kraft pulp for other mills and board, did most of their expansion in earlier postwar years.

From Ann Thom, wife of Mitchell Thom, former Canadian superintendent, who now directs mill operations at the other Macorra family-headed enterprises—Papelera Nacional (fine paper mill) and Cartonera Nacional (board), both at Tlalnepantla, north of Mexico City—comes an interesting description of that modern new industrial city. These mills were completed in 1948.

"Records show Indians lived here in 1100 A.D. and until recent years it was a typical small Mexican pueblo," she wrote. "Now large railroad yards have been built, taking the load off Mexico City (11 mi. away), and other modern industries have come here—Reynolds de Mexico, a large aluminum plant; Asbestos de Mexico; Industrial Electrica de

# Carpenter Stainless Tubing KEEPS PROCESSES GOING ON SCHEDULE



Modern heat exchanging equipment like this heater/cooler used in a large Wisconsin paper mill has to stay on the job. You can't afford to interrupt a process for hours or days to replace tubes.

That's why the manufacturer of these units selected Carpenter Stainless Tubing, Type 316.

In addition to providing good resistance to the corrosive effects of sulphite waste liquor, Carpenter tube quality and uniformity help to make the 20th unit as good as the first.

Wherever a product or process involves corrosion-resistant tubing, it will pay to put Carpenter experience to work for you. Distributors are located in principal cities from coast to coast. The Carpenter Steel Company, Alloy Tube Division, Union, N. J.  
Export Dept.: The Carpenter Steel Co., Port Washington, N. Y. "CARSTEELCO"

#### **Send for USEFUL SLIDE CHART**

Physical properties, sizes and gauges, cross-sectional areas, velocity constants, pressures, weights and other technical data on Carpenter Stainless Tubing for heat exchanger applications are condensed into a handy chart. It's yours for the asking, on your company letterhead.



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**STAINLESS TUBING & PIPE**



- guaranteed on every shipment



THIS IS NEW PICTURE of Atenquique, Mexico, west of Guadalajara, in wild, virgin pine country and site of the first mass producing mill ever built in Mexico. In the valley are homes for employees and beyond in distance is smoke of Atenquique kraft mill, which supplies large portion of market pulp and board for Mexico. It was visited by PULP & PAPER editor (see June 1948 issue for complete story).

Mexico, Pittsburgh Paint Co., A. P. Green Refractory making fire brick; and huge grain elevators will handle most of the grain grown in Mexico."

**By Carlos Garcia Robles**  
**Pulp and Paper Mill Engineer,**  
**Mexico City**

Here are details on some of the new mills and new additions now in operation in Mexico or soon to be built. First, discussed is the new board mill of Sonoco Products Co.; then Kraft, S. A., another new mill near Mexico City.

#### SONOCO DE MEXICO, S.A.

A new paper mill subsidiary of Sonoco Products Co., of Hartsville, S. C., started operations around the first of 1952. The mill is located in the village of Santa Clara, 10 miles from Mexico City, over the Laredo Highway, with railroad facilities.

Baled waste paper is delivered to two 7 ft. continuous Hydrapulpers supplied by Shartle Bros., driven by 50 HP vertical motors. Two 1,000 GPM Goulds pumps convey the stock from the Hydrapulper to a Shartle Bros., 1000 GPM Hydrafiner at 1 to 1.5% consistency and then it is thickened to approximately 3.5% consistency in two 36 in. decker type thickeners.

From thickeners, the stock flows by gravity into two 8,000 gallons stock chests, equipped with 36 in. diam. Shartle Bros. propeller agitators from where an 8 x 18 in. duplex stuff pump delivers the stock to two DeZurik consistency regulators feeding two 75 HP Monarch jordans. The jordans discharge into two machine chests and an 8 x 18 in. duplex stuff pump conveys the stock to a dividing box and then to four 10 HP double suction fan pumps.

The rebuilt Shartle paper machine is equipped with four 36 in. x 90 in. face cylinder moulds and a 36 in. x 90 in. face extractor roll. Four primary presses and two main presses complete the wet end of the machine.

Thirty-seven 36 in. dia. x 84 in. face dryers in three decks, and two 7 roll calender stacks form the dry end. The sheet,

after passing through the calenders is fed to a Moore & White slitter and double drum winder.

The machine is driven by a 90 HP, 200 p.s.i. inlet and 35 p.s.i. exhaust back pressure Murray turbine, connected through V belts to a line shaft, which drives each section by means of cone pulleys and flat belts.

Steam requirements are provided for, through an M-2 controlled forced recirculation steam generator supplied by Combustion Engineering de Mexico, S. A.

Of the total production, which at present is at the expected level of 20 tons of finished board per day, 20% is utilized in Sonoco's own converting plant and the rest is sold to outside firms. The company specializes in paper cones, tubes and other products for the textile industry.

Installation and erection was started in July 1951, under the supervision of P. L. McCall, assisted by J. E. Webb, both of the Engineering Department of Sonoco, at Hartsville, S. C.

Joel De Ferry is the sales manager of the new plant, with W. H. Miller, general manager, and Stanley Wilkes, superintendent.

#### "KRAFT," S.A.

This is an entirely new mill which started operations in 1952 at Guadalupe Hidalgo, a suburb of Mexico City. It has a capacity of 20 short tons of kraft paper using waste kraft and kraft pulp in various proportions.

The waste paper is cut in a Sprout-Waldron shredder and conveyed to the pulper by means of a fan. The shredded stock is pulped in a home made 90 HP pulper and discharged by gravity into a stock chest. The stock is pumped into a sandtrap where it is diluted to 1% consistency. The stock is thickened in a thickener to 5% consistency and the white water from this unit recirculated back to the sandtrap to dilute the incoming stock. A 600 cu. ft. machine chest is provided with circulation by means of a 36 in. propeller, the stock being pumped to a Trimbley consistency regulator and then to a Dilts Hydrafiner with cycling back to the machine chest, or through a distributing box to a finishing E. D. Jones & Sons Co. standard jordan. The stock is screened in a 36 in. diam. x 60 in. Bird screen.

A second hand Rice Barton Fourdrinier paper machine, has been installed with a 101 in. x 52½ ft. wire, plain couch roll, and one straight and one reverse press. 24-36

in. x 98 in. dryers with 4 felt dryers and a 9-roll Moore & White calender stack reel and a Moore & White slitter and winder complete the production line.

The officers of this new concern are: Henry S. Dabdoub, president, Cirilo Exquer, vice president, Guido Pasqualucci, technical adviser and also a member of the board of directors.

#### COYOACAN PAPER MILL

The old conventional Marshall drive of the 124 inch No. 3 Paper Machine at this larger mill at Coyoacan, has been replaced with a Sectional Electric Drive, manufactured by Reliance Electric & Engineering Co. of Cleveland U.S.A., with the following characteristics:

Speed variation provided from 120 to 500 ft. per minute; a motor generator set generates the current needed for the sectional motors and consists of a 250 HP synchronous motor, a 150 KW, D.C. generator, a 30 KW starting generator and a 10 KW D.C. generator. 8 sectional motors are provided: a 50 HP, D.C. motor for the suction couch roll; 2-20 HP motors for the press sections; 2-20 HP motors for the dryer section; 2-40 HP motors for the calenders, and 1-20 HP for the reel.

Vortrap units sold by the Nichols Engineering & Research Corp., of New York, have been provided on the three paper machines. Machine No. I has a standard system, dumping manually the rejects and consisting of 2-4 in. Vortraps. Machine No. II has a primary-secondary system with 2-4 in. primary Vortraps and 1-3 in. secondary Vortrap; Machine No. III is served by 3-4 in. primary Vortraps and 1-3 in. secondary unit.

A new German roll grinding machine sold by Waldrich, Siegen Westphalia, is already in operation in the new machine shop. It is capable to grind with and without crowning, machine and supercalender rolls up to 32 in. diameter x 175 in. length between points.

A new power plant is taking care of the

#### MEXICO—PAPER PRODUCED

(In Thousands of Short Tons)					Total (Includes others)
Printing* (no news)	Writing & Fine Wrap	Course Tissue	Paper Board	Total	
1947					138
1948	17	20	54	44	147
1949	18	23	58	49	156
1950	22	25	52	45	150
1951	27	35	77	56	217
1952	25	30	70	60	198

\* There is no newsprint made in Mexico.

#### MEXICO—PAPER CONSUMED

(In Thousands of Short Tons)					Total (Includes others)
Printing* (no news)	Writing & Fine Wrap	Course Tissue	Paper Board	Total	
1948	20	23	59	47	165
1949	19	27	60	49	171
1950	25	32	75	54	209
1951	29	36	78	57	226
1952	29	33	76	63	230

\* Mexico has imported about 60,000 tons of newsprint annually in recent years.

#### MEXICO—WOODPULP

(In Short Tons)		
	Produced	Imported
1937	18,636	
1946		27,010
1947		56,314
1948		78,880
1949		71,500
1950		77,000
1951		94,000
1952		90,000
		60,000

steam requirements. A Combustion Engineering boiler has been installed with all the auxiliary equipment. The boiler has a capacity of 22000 lbs./hour, of steam, at a maximum load, 530° F. superheat at 450 p.s.i. working pressure. A Permutit water conditioning system has been installed, consisting of an external treatment of hot lime and soda with mud circulation, to eliminate the silica by means of activated magnesium oxide. A deaerator to eliminate dissolved gases is also provided. The internal treatment is completed through the addition of phosphate and sodium sulphite. The boiler will be operated by means of a Heys Automatic Control.

A 500 KW, "Stal" back pressure turbine will be installed; the exhaust steam at 40 p.s.i. will be used at the paper machines.

#### FABRICA DE CELULOSA "EL PILAR," S.A.

Coyoacan has formed a new company—"El Pilar"—for the manufacture of 28 tons of bleached pulp from sugar cane bagasse. This mill will be the first of its kind to be installed on a commercial scale, in Mexico, and it is expected that by the end of 1953 it will already be in full production.

The mill will be located some 13 miles from Mexico City, on a 20-acre site to provide for future expansion.

The plant will use the fully continuous Celdecor-Pomilio process and the entire equipment is being manufactured by the Cellulose Development Corp. of England and South Africa.

Briefly the process will consist of the following operations: the bagasse made up into small bales will be treated at a preparation plant to remove all dust and pith, being transported after this operation to a caustic soda dosing unit before entering the continuous digestion tower, which is heated by low pressure steam; after passing through this unit, the pulp will be washed in a special wash filter and thence to the chlorination tower, wash filters, alkaline treatment, wash filter, screens, continuous bleaching and lapping machines.

The plant will be equipped to produce its own caustic soda and chlorine gas requirements, by the electrolysis of common salt, by means of 60 CASA electrolytic cells, to be made in Mexico to drawings supplied by Sindicato Cellulosa Pomilio of Rome, Italy. The mill will also be equipped with a hydrochloric acid plant to take care of the chlorine gas and hydrogen surplus.

#### EL FENIX PAPER CO.

This company has two mills in operation in Mexico City, one on Rio del Consulado Street, where they make fine papers and another on Comonfort Street, where they manufacture board. The first unit is being constantly improved and new equipment has been incorporated or will be installed at a future date.

At the Rio del Consulado unit, the Marshall drive of the 90 in. Fourdrinier, is being replaced by a sectional electrical drive, manufactured by the Harland Engineering Co. of England, with the following characteristics: Variation of speed is from 65

to 390 ft. per minute; a 4-unit motor generator set consisting of a Squirrel Cage motor, 185 HP, driving a D.C. 120 KW generator, a 6 KW exciter and a crawl generator, will provide current to the sectional D.C. Motors at the suction couch roll are 35 HP, at each press section, 15 HP, dryer section, 35 HP, and calendars, two each 35 HP. The speed control at each section is effected through a carbon pile assembly, giving infinitely fine control of the section.

The same paper machine will be equipped with a Ross Engineering hood, Ross-Grewin and Ross Felt drying systems, all manufactured by the J. O. Ross Engineering Corp., of New York.

A 90 in. Voith inlet has been ordered from the Voith Co. of Germany, and the two low speed Emerson jordans have been replaced by 3 high speed refiners made by the E. D. Jones & Sons Co., (U.S.A.)

A primary-secondary Vortrap system has been installed before the machine screen, consisting of 2-4 in. primary Vortraps and 1-3 in. secondary unit. A NIMA, 18 tons rotary screen has replaced an old screen.

## CHILE Still Plan Expansion

(Chile's 6,000,000 people use an average of 24 lbs. of paper per person per year.)

REPORTS FROM CHILE early in 1953 were that plans were still, or again, being considered for a cellulose mill and newsprint mill in the Concepcion district and that estimated cost of \$20,000,000 would include an already solicited loan from the International Bank.

A year ago in this section, PULP & PAPER published first reports of this plan. It now envisages a mill making 47,500 tons of cellulose and 45,000 tons of newsprint. Herty Laboratory in Savannah, U.S.A., has tested Chilean pine for newsprint.

The initial figures for production at the new mills were less than half of the above amounts. Compania Manufacturera de Papeles y Cartones, presently the only large paper mill in Chile, was reported last year as the company that would be charged with the new expansion. Its present mills are at Puente Alto, near Concepcion. They already were reported making 110 tons a day of news, which was three-fourths of Chile's needs. Also 90 percent of needs in kraft, writing and board. It makes straw and groundwood pulps. There are large areas of pine near Concepcion. Annular rings of this pine are almost an inch wide in trees only 10 years old or so.

This company is headed by Jorge Alessandri and Antonio Bascunan P. is

#### CHILE—PRODUCTION

(In Thousands of Short Tons)

	Mech. Pulp	Chem. Pulp	News- print	Total Paper
1949 .....	14	6	9	52
1950 .....	17	6	28	55
1951 .....	21	8	33	61
1952 .....	22	7	33	55

general manager. It has eight paper machines with a wide range of papers. Its high grade bleached straw is of a brightness comparable with bleached wood-pulps.

Cia. Manufacturera de Papeles y Cartones S.A., at its Valdivia mill, 600 miles south of Santiago, had work under way for a new kraft pulp mill. It has converting operations in Santiago.

## PERU

### The Cetico Project



A. MASTROKALO, Engineer, Industrial Dept., Banco de Fomento Agropecuario del Peru, Dept. de Selva.

(Peru's 8,500,000 people use an average of 7 lbs. of paper per person per year.)

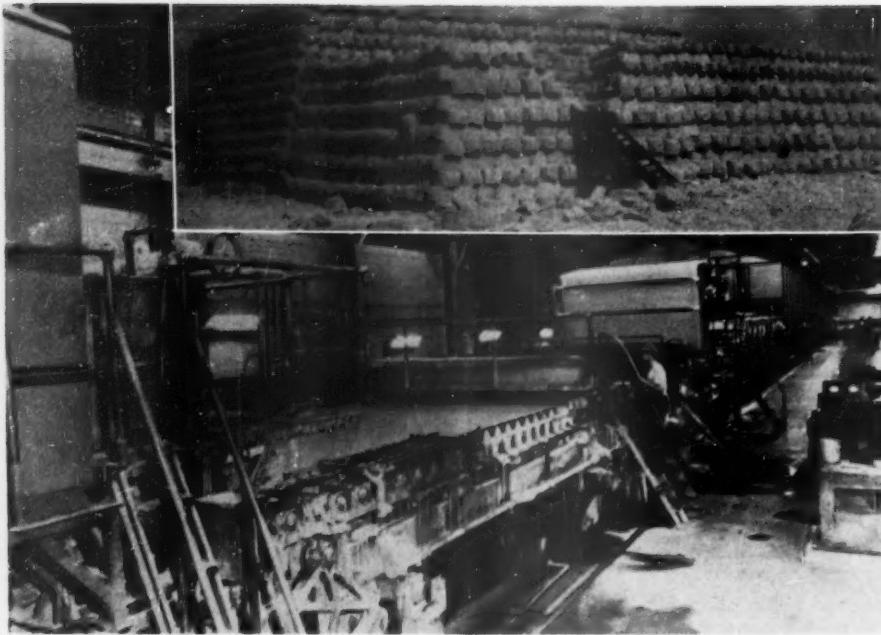
INVESTIGATIONS WILL CONTINUE before a final and definite decision is made on the plans for a Peruvian newsprint mill making about 60 tons a day, using the Cetico tree as base material. The project was first reported a year ago in this section of the WORLD REVIEW NUMBER. A French engineering firm, Batineyret & Co., has made proposals to build the mill.

As first outlined to PULP & PAPER by Alfredo Mastrokalo, engineer of Corporacion Peruana del Amazonas, Lima, Peru, the groundwood would be made from the mulberry-like Cetico, one of the most rapid-growing trees in the world, and chemical pulp by soda-chlorine process from cane bagasse and/or rice straw, or chemical pulp might be imported. Cetico matures in 5-8 yrs., when it is a foot in diameter and with useable length of 20 to 30 ft. It is whitish or gray wood.

The Banco de Fomento Agropecuario of Peru has investigated a proposed site at Pucallpa, on Ucayali River, according to Ken Forrest, Roaring Spring, Pa., consulting engineer, who recently visited Peru. He said the project seemed feasible but needed further study, and cost of newsprint would be less than imported. Peru wants the mill to avoid the necessity of exporting hard-to-get dollars to buy newsprint.

Mr. Forrest considered the Iquitos region could support a pulp and paper mill, but it would be partly dependent on export markets. Water might not be adequate for increased output of bagasse pulp-papers. Labor is plentiful.

A new mill in Peru started up in 1952, Cia. Celulosica Papelera del Norte, in Chiclayo, 600 miles north of Lima, owned by the Aspilla Anderson brothers, is



**SANDY HILL IRON & BRASS WORKS (U.S.A.)** built this machine for the Paramonga Mill, near Supe, Barranca, in Peru. In inset above is baled bagasse stored in piles outside this mill. This is material used, mixed with imported bleached sulfite and kraft pulps.

making about 10 tons daily of bagasse pulp-kraft type papers.

The paramonga mill at Hacienda Paramonga, which was described in the 1951 World Review (this section), uses pulping methods developed by W. R. Grace & Co., especially for sugar cane bagasse, and produces wrapping, bag, container and printing papers. The bagasse pulp is mixed at Paramonga with approximately 4,000 tons of imported bleached and unbleached pulps to make 17,000 tons yearly. Licensing of the process is through Sandy Hill Iron and Brass Works, Hudson Falls, N. Y.

The Prado family owns a 4000 ton mill making toilet and quality papers from imported pulp and board from rags and waste paper at La Papelera Peruana, near Lima. There is another small waste paper board mill in Lima, Piedra Liza.

Forests of Peru all lie east of the Andes, said Mr. Forrest. The only pure stands are the Cetico. In this section last year was published news of the asserted success of a French mill in Marseilles making newsprint with this wood, shipped from Peru. All the bagasse is along the north coast. Peru sugar mills yielded 1,175,000 tons of wet bagasse in 1951, much of it used for fuel. Pulp yield from the total would be 250,000 short tons, said Mr. Forrest. At present about 80,000 tons are used for paper. He said increasing oil output in Peru could replace it in fuel.

#### PERU—IMPORTS

(In thousands of short tons)

	Ground-wood	Chem. Pulp	Newsprint	All Paper
1947	0.2	2.4	7.4	11.4
1949	0.02	6.8	6.3	20.6
1950	0.8	7.9	9.0	20.9
1951 (latest available)	0.5	6.8	11.7	23.1

## ECUADOR

### Wood is Plentiful

(Ecuador's 3,500,000 people use an average of 5 lbs. of paper per person per year.)

OVER 45 PERCENT OF ECUADOR is forest land but little use of it has been made except for a few sawmills which export lumber. Bamboo is plentiful in the west and used to some extent for a crude building board. Tropical broadleaf evergreen trees are the most plentiful and in northwest lowlands, where they are more accessible.

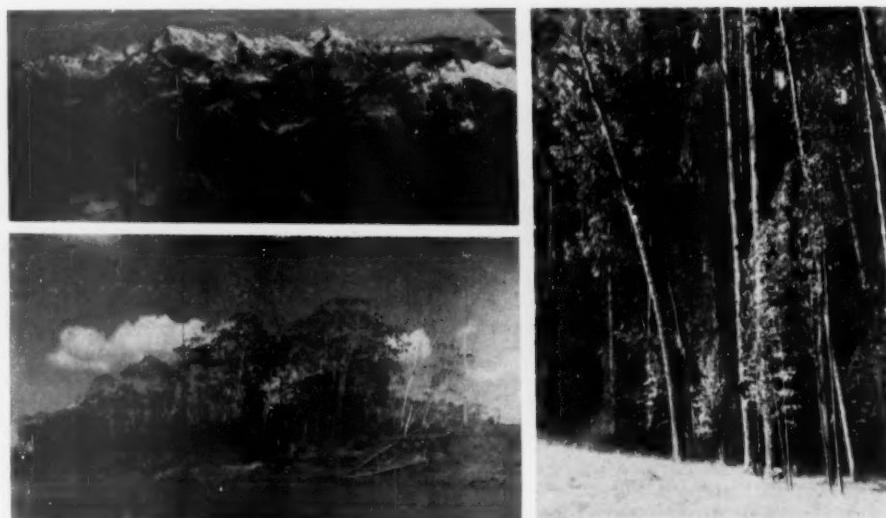
K. A. Forrest, Roaring Spring, Pa., paper industry consultant and formerly with Mead and Combined Locks, recently went here in a mission and he told PULP & PAPER the Ecuador government has one of the most advanced departments of forestry in Latin America, headed by Dr. M. Acosta Solfa. It has nurseries and plantations.

There is enough bagasse in the Milagro area, 25 miles from Guayaquil, for a 40,000 ton mill, but much is used now for fuel. A very small mill was reported built by Italian engineers at Latacunga, 60 miles from Quito, making bagasse wrapping paper.

Rice straw, barley straw, paramo grass are plentiful but scattered and not economical sources for paper, said Mr. Forrest.

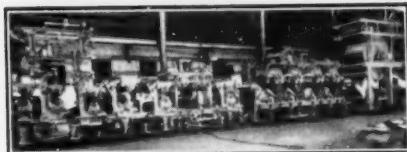
He thought best location for a mill using wood would be at Esmeraldas, at the mouth of Esmeraldas river. Water is plentiful, forests come close to the town, and there would be no pollution problem. Products would be taken by sea to Guayaquil and train from there to Quito. The Cetico tree (also called Guaruma), like the mulberry, successfully tested for chemical and mechanical pulp in France,

THESE ARE PERU AND ECUADOR scenes from KEN FORREST, Pulp and Paper Consultant, of Roaring Spring, Pa., who made a trip to those countries last year to investigate papermaking possibilities. Top left—VIEW OF THE ANDES in Peru. The height of highest peaks is 19,000 feet. Below left—CETICO TREES on Ucayali River in Peru. This wood was tested in a Marseilles, France newsprint mill and is expected to be future successful raw material for South American paper. At right—A EUCALYPTUS Plantation in Ecuador considered as suitable for papermaking.

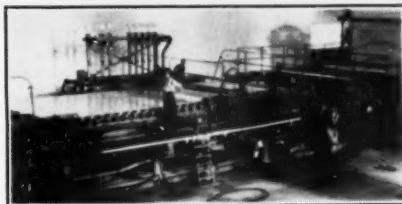




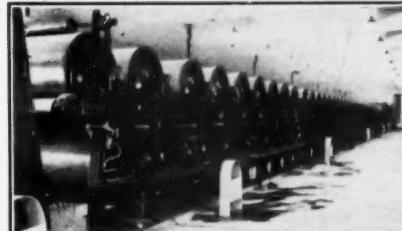
## Sandy Hill Machinery *Produces* for the U.S. and throughout the world



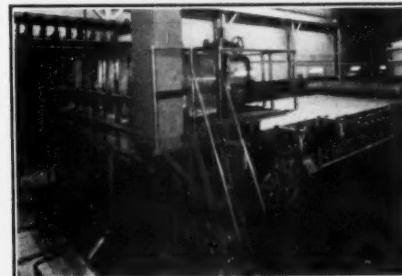
*Semi-commercial machine for India. Small enough for development work; large enough for commercial use.*



*Highly successful fourdrinier now in operation in Austria, making printing papers.*



*Dryer section on complete board machine in Mexico.*



*Fourdrinier for making bond and printing papers, operating in the United States.*

SANDY HILL paper and board machines, some of them in continuous operation for nearly fifty years, are still giving conspicuously satisfactory service in mills throughout the United States. Today the satisfaction of American producers with Sandy Hill's complete line of equipment is being duplicated in Central and South America and in many countries across the seas.

Through the years Sandy Hill has consistently pioneered in new and improved methods and equipment, with constant consideration for the factors of higher quality, increased production and ultimate economy. The latest, most modern developments in the industry are being incorporated in machines now in the building stage.

Sandy Hill's engineering staff has been conspicuously successful in meeting the minds and solving the problems of operators in countries outside the United States and Canada. Our experience, counsel and facilities are constantly at your service.



*Sugar cane bagasse has been used successfully and profitably as a source for papermaking fibre since 1938 by W. R. Grace & Co., through its subsidiary, Sociedad Agricola Paramonga, Ltd., at Paramonga, Peru.*

The Sandy Hill Iron & Brass Works is exclusively licensed to design and build machinery for the commercial conversion of bagasse to paper by the Grace Company's secret formula.

Similar services, from mill planning to production and initial operation, are available for the processing of other suitable types of fibre.

Sandy Hill's New Brochure of Pulp and Paper Making Machinery is available on request.



### The Sandy Hill Iron & Brass Works Hudson Falls, N.Y.

*Manufacturers of*  
Adjustable Cylinder Vats  
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Kamyr Pulp Grinders  
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*Machinists and Founders Specializing in Pulp and Paper Mill Machinery*  
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Selective and Corner Drives  
Fourdrinier Paper Machines  
Packer Screens

*Castings*  
Kamyr Pulp Bleaching Equipment  
Scofield Felt Conditioners  
Yankee Fourdrinier Machines  
Yankee Cylinder Machines

Associated with Canadian Vickers, Ltd., Montreal, Builders of Sandy Hill Designed Machinery in Canada



## LATIN AMERICA

would be the main species used. Some exports would be necessary to support a mill.

Another possible site, said Mr. Forrest, is near Guayaquil, bringing wood down the Guayas and tributaries. Integration with lumber or plywood might be desirable.

At present, Ecuador imports all its paper. It imported 8,340 short tons in 1951 and 4,560 short tons in the first half of 1952. About half in each case was newsprint.

**KEN FORREST** (left), Pulp and Paper Manufacturing Consultant of Roaring Springs, Pa., whose observations on industry possibilities in Latin America are reported in this section. He accompanied a mission there last year to make a survey. **JUAN CARLOS RAFFO FRAVEGA** (right), President of Fabrica Nacional de Papel S.A., near Montevideo, Uruguay, on the banks of the great La Plata River, which is one of the world's largest producers of fine papers from bleached straw.



## COLOMBIA New U.S.-made Machine

(Colombia's 11,300,000 people use an average of 9 lbs. of paper per person per year).

**THE BIG NEWS IN COLOMBIA** was the start-up in December 1952 of the new Pusey & Jones (Wilmington, Del.) paper machine in the very modern and up-to-date Carton de Colombia S.A., mill at Cali. From official sources, PULP & PAPER was advised that this mill is now going to supply Colombia with all of its present needs of bond, wrapping and multi-wall papers. It must still import newsprint, etc.

About 15,000 tons per year of pulp is being imported to supply this modern 167-inch machine which is expected to run at a pace averaging 40 tons daily. In addition this mill has a smaller cylinder board machine of 96 in. width which makes another 40 tons a day of paperboard from bagasse pulp manufactured at the mill.

**THIS MODERN MILL** owned jointly by Container Corp. of America, and local capital—CARTON DE COLOMBIA, S.A., at Cali—started up new equipment in December 1952 including a new Pusey & Jones paper machine from the U.S. calculated to make 40 tons daily of bond, wrapping and multi-wall bag paper, all from imported pulp (15,000 tons a year to be imported), according to official sources. According to these government sources, this mill is now able to produce all the present needs of Colombia in those paper grades.



## COLOMBIA—IMPORTS

(In Thousands of Short Tons)

	Acetate-			
	Rayon Pulp	Paper Pulp	News- print	All Paper
1946 .....	1.8	0.2	11.2	27.5
1948 .....	2.4	0.2	15.5	35.3
1949 .....	1.2	0.2	13.3	40.7
1950 .....	2.6	0.2	20.9	54.0

(latest available)

available. There is a stretch of over 200 miles of forest in the Magdalena valley.

Mr. Forrest thought further tests with wood species would be desirable and suggested the cold caustic soda process developed at the U. S. Forest Products Lab, Madison, Wis., would be well adapted for such a mill, because of low power needs, and possibly could be used to make 100 tons a day.

Pulp made from bagasse in this country would have to be exported except such quantities as Carton de Colombia might use.

Ceiba brava is most abundant wood in this area. It and three other species already have been tested at Madison. Tree plantations would have to be developed for other potential newsprint mill sites.

## URUGUAY

### Brown Mills (USA) Builds

(Uruguay's 2,600,000 persons use an average of 40 lbs. of paper per person per year.)

**URUGUAY** IS ONE of the most advanced of Latin American countries and despite its small size is one of the most important in the paper field.

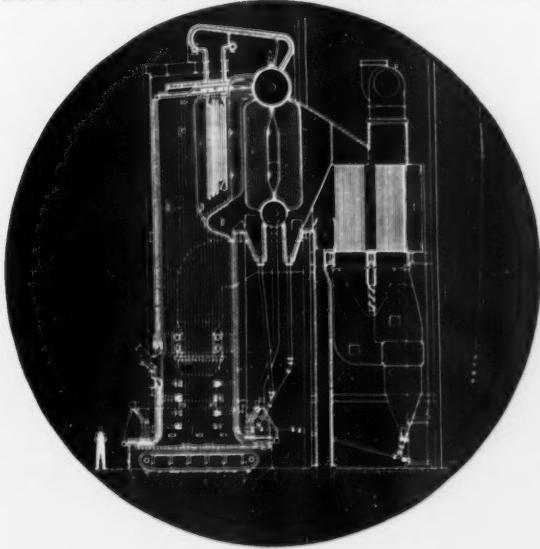
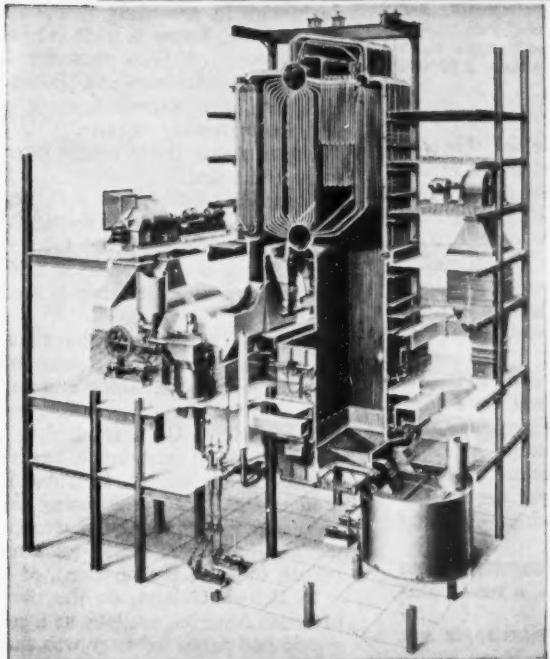
A new mill is being built in Uruguay with a rebuilt U.S.-used 120 in. Pusey & Jones paper machine but other new equipment. This is a subsidiary of Brown Paper Mills Co., Inc. of Monroe, La., U.S.A. F. Lutcher Brown, of the Southern papermaking family, is general manager of this new company—Industrial Comercial del Sur, S.A., with headquarters at Rineon 487, Montevideo. Several key men from the Louisiana mill were transferred to Montevideo to get the mill in operation and much American equipment is being installed.

A prime reason for Uruguay's impor-

this



## equipment . . . at your service



**C-E RECOVERY UNITS** with an aggregate capacity of well over 50,000,000 lbs. of dry solids per 24 hours are now in service, under construction or on order. They vary in capacity up to 350 tons and for operating steam pressures up to 875 psi with temperatures to 825 F.

C-E Recovery Units are in service in many of the best known mills throughout the United States and Canada; other installations are in Europe and Latin America. Their repeat order record is exceptional. Three large companies have purchased C-E Recovery Units on four different occasions, two companies have ordered three times and eight companies have ordered twice. The reliability, efficiency and operating economy they anticipated from their first C-E Units became the reality upon which future orders were predicated.

**C-E BARK BURNING UNITS** bring to the pulp and paper industry a revolutionary bark burning method—proved in service—that will soon be paying impressive dividends to leading mills all over the country. The primary feature is turbulent-suspension burning. Bark or hogged wood is fed into the furnace by specially designed spreader units located at a considerable distance above grate level. Preheated air, introduced through nozzles at various furnace levels, assures extreme turbulence and, therefore, rapid and efficient combustion. Most of the bark burns in suspension—the balance burns quickly and evenly on the grate.

Reports from installations now in service show that overall savings have been very substantial, that performance has been excellent and that availability is exceptionally high.

**OTHER C-E PRODUCTS** for the pulp and paper industry include all types of boilers and fuel burning equipment and C-E Flash Drying Equipment which has been very successfully applied to existing lime burning operations to increase capacity and efficiency.

B-643

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## LATIN AMERICA

tance in paper in Latin America is the very progressive Fabrica Nacional de Papel S.A., on the Rio de la Plata, near the capital, Montevideo. J. D. Haskell, one of the top executives of the Black-Clawson company and its division in United States, on his recent visit there said, "One is struck with the progressive spirit" of the Uruguayan firm. Juan Carlos Raffo Fravega is the president. It was founded by Nicolas Calcagno, an Italian immigrant, in 1885, after he had brought technicians from France to assist.

All kinds of raw materials were used over the years from rags, cane, hemp, wheat straw to imported woodpulp. But in 1941 the Pomilio-straw bleach process was started up and after the war it was expanded, with a third paper machine, so that now this mill is one of the largest producers of fine paper from bleached straw in the world.

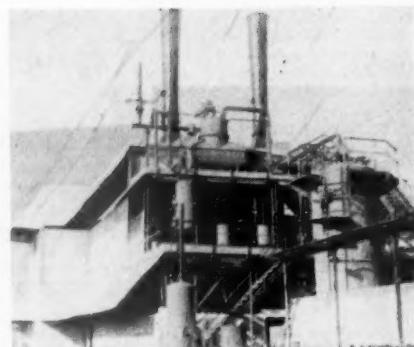
Sandy Hill Iron & Brass Works of Hudson Falls, N.Y., designed and supplied equipment for the latest expansion which included Shartle Hydrapulper, Noble & Wood Victory beaters, Sandy Hill Fourdrinier, Stowe-Woodward covered rolls, Cameron winder, Ross hood, and Reliance motor generator and motors.

## GUATEMALA

### New Type Mill Halted

(Guatemala's 2,900,000 people use an average of 4 lbs. of paper per person per year).

ONE OF THE WORLD'S great curiosities of the paper industry—a little mill that was "fathered" by a young Guatemalan industrialist, based upon utilization of lemon grass residue from his oil process plant, has shut down since the last issue



A GENERAL VIEW OF LOS CERRITOS PULP & PAPER CO., lemon grass paper mill at Los Cerritos, Guatemala, which at last reports was temporarily shut down. But this mill until recently, and since starting up a few years ago, was believed unique in its process and use of native grass to make .009 and .035 paperboard.

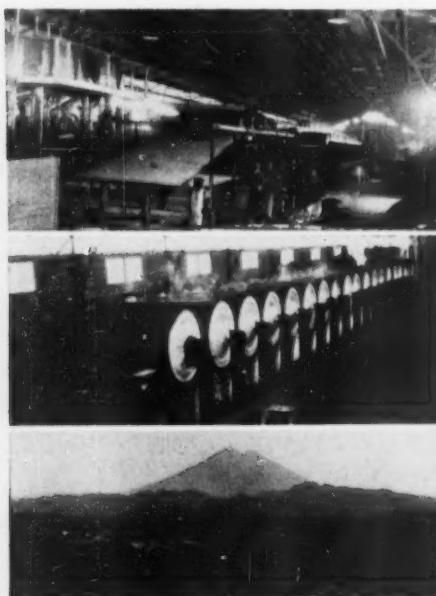
of this WORLD REVIEW.

There had been no word of the mill starting up again when this issue went to press and the reports were that it had been selling its paperboard products in export markets which were closed to it. There were shipments to New Orleans and other points. The chance of developing markets closer home held out some faint hope for resuming operations at Los Cerritos Pulp & Paper Co.

Minor Keilhauer is the young industrialist who invested over a million dollars in the plant. It was the first paper mill between Mexico and Colombia in Latin America. The lemon grass is cropped four times a year with machetes for the oil plant. Paper was a by-product—.009 and .035 paperboard.

A secondhand cylinder machine from New York, rotary digesters, a new Com-

HERE ARE SCENES AT LEMON GRASS PAPER MILL at Los Cerritos Pulp & Paper Co. in Los Cerritos, Guatemala (exclusive photos for PULP & PAPER): At LEFT SIDE, TOP TO BOTTOM, are general view of machine; the dryer section and a lemon grass field with the live volcano, Fuego, in background. At TOP RIGHT: A load of .009 on way to New Orleans. The mill can be seen in background. This is a narrow gauge track so flat cars must be used, as rolls will not go into box cars. BELOW, RIGHT: Harvesting lemon grass. There are four crops a year—all cut with machetes.



bustion Engineering boiler plant, were among installations made since the war for this mill.

## REST OF AMERICA

### Paper Mills Planned

(There are an estimated 35,000,000 people in other Latin American nations not discussed elsewhere in this section and they use an average of from about 50 lbs. per person per year in Cuba to an estimated 3 to 10 lbs. in most countries).

OTHER LATIN AMERICAN countries not dealt with in preceding sections are discussed here. There is definitely a potential in some of these countries for possible future expansion and United Nations missions have surveyed most of them and made glowing reports.

Summarizing the practical current developments first:

Costa Rica has a new mill, reportedly getting into operation early in 1953 using manila hemp (abaca fiber) for a raw material. It is a two-machine mill at La Perla, Costa Rica, making a kraft paper product.

In Cuba a government board has studied another plan to make pulp and newsprint from bagasse, which is more plentiful here than anywhere in the world. Observers believe Cuba is ideal as a locale for this type of mill, but it has had three bagasse plant failures. In Cuba, Papelera Moderna, S.A., Havana, using purchased pulp and waste paper for wrapping, has more output from a 134-in. Fourdrinier rebuilt by Rice Barton Corp. of U.S.A.

In British Guiana, on the north coast of South America, wallaba as a source for a pulp and paper industry was studied officially by the British government. Although the so-called Hebb Report decided it was uneconomic, an international bank mission was giving it further study.

The Dominican Republic has now announced that it intends to build a \$2,500,000 sugar cane bagasse pulp, paper and board mill, a project which was reported in this column last year. Cellulose Development Corp. Ltd., Hatch End, Middlesex, England, were consultants.

It would be located about 10 miles from the capital, Ciudad Trujillo, near a newly built \$10,000,000 port and sugar center. It is intended to make 2,000 tons a year of newsprint and 6,500 tons of carton and box paper, bags, writing and bond. The nation's consumption of newsprint is 1,700 tons yearly and of all paper, 5,000.

There are 20 million acres of so-called commercial timber in Paraguay, half its area, but it is used only for lumber and for one plywood plant.

A United Nations report said three-fourths of Nicaragua, 16 million acres, is evergreen forest. One fourth of the area is deciduous. Only sawmills use the forests, processing pine and hardwood.

Bolivia has a small mill making carton board. In Venezuela there are two mills making sulfite wrapping and a small amount of kraft, about 6,500 short tons a year, far below needs. Another makes gray and corrugated board.

# HANDLE ANY WOOD

## with LORAIN CRANES

Any wood... anywhere... faster, cheaper, safer! Below are four pulpwood handling operations. Each is different—but a properly-equipped, suitably-mounted Lorain Crane solved each one. Ask your nearest Thew-Lorain Distributor what Lorains can do for you.

THE THEW SHOVEL CO. • LORAIN, OHIO



**LOOSE**



This Lorain 50-I crawler crane, with pulpwood grab, handles 15 to 20 cords of jumbled, loosely piled wood per hour. On blockpile work Lorains reduce accidents; eliminate hazards of dynamiting frozen wood; replace 20 to 30 men.



**BUNDLED**



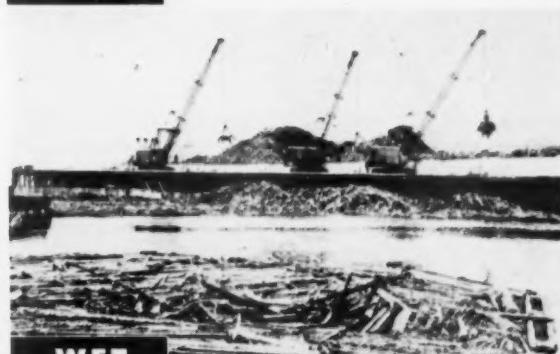
At 30 mph this rubber-tire Lorain-TL Moto-Crane makes shuttle runs of 80 to 100 miles between 3 widely separated concentration yards where it uses slings to unload and load 2½ cord stacked bundles.



**STACKED**



A grab is used on this 15-ton Lorain-TL Self-Propelled Crane, to load chipper cars from the stockpile. Here's another attachment—and another Lorain mounting—one-man operated, with 7 mph mobility for use anywhere in the yard.



**WET**



Here, 3 big Lorain-820 Cranes with pulpwood grabs transfer big bites of wet wood from the water to a barge. This mill uses 17 Lorains to help get 450,000 cords delivered to the mill the same year as cut. (Names of all owners on request.)



Most Lorain Cranes are available on 3 mountings, to match the ground, travel and mobility demands of mill.

CRAWLER MOUNTINGS  
For infrequent travel (1 to 2 mph) where terrain demands soft-ground flotation and traction. Capacities from 6 tons up.

SINGLE-ENGINE SELF-PROPELLED CRANES  
Single-engine, one-man rubber-tire cranes for localized mobility up to 7 mph. Capacities from 10-tons up.

2-ENGINE MOTO-CRANES  
High-speed, 30 mph unlimited mobility. Also for off-the-road travel. Crane capacities from 10-tons up to 45-tons.

1953 Review Number

PULP & PAPER

159

**THEW LORAIN®**

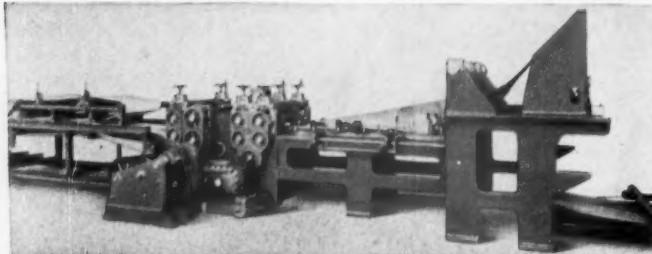


**THE SMITH & WINCHESTER MFG. CO.**  
PAPER MILL AND PAPER BAG MACHINERY

Plant and Offices

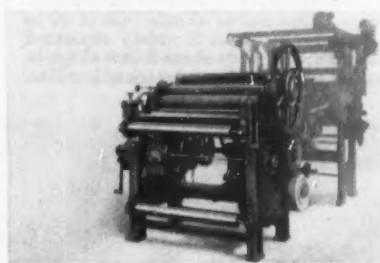


South Windham, Conn.



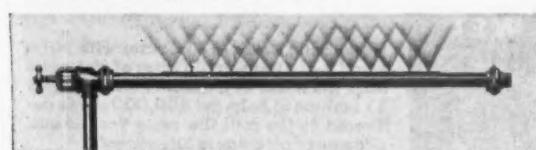
**MULTI-WALL TUBER**

For the production of single and multi-wall valve notch tubes for sewed valve type bags. Machine built in 2 sizes, 20" and 26" face; tubes, 26" to 50" long.



**ROTARY SPOT CUTTER**

Rotary Cutters for accurately handling large quantities of stock in finishing room. When equipped with patented photo-electric compensator, will accurately spot-cut pre-printed traveling webs. Built in 40", 50", 60", 71" and 83" widths. Layboy and stacker may be furnished.

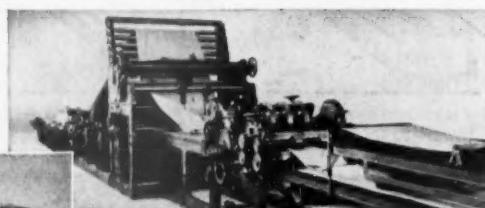
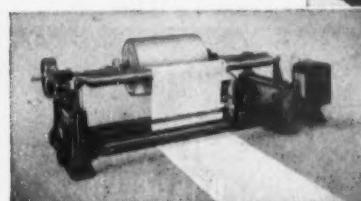


**SHOWER PIPES**

The famous S & W "Rainstorm" Shower Pipe for greatest effectiveness and maximum economy.

**WEB CONTROL**

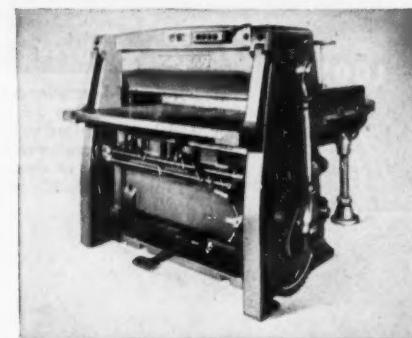
Fully automatic electric eye, side register control or web feed. Manual control can be supplied.



**NO. 10 TYPE TUBER**

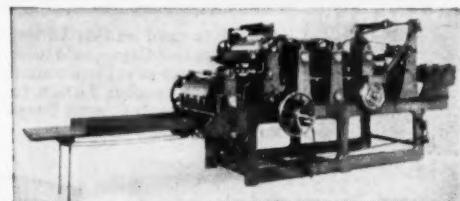
For pasted bottom, multi-wall tubes. Used in connection with S & W Bottomers or producing standard satchel bottom or valve bag. Fully automatic or manual control for web feed.

Complete information on any of the above equipment on request.



**MODEL "E" UNDERCUT TRIMMER**

The S & W Undercut is the only undercut trimmer made. The Model "E" is newly designed for fast, effortless, accurate cutting and safe operation. Retains the outstanding features of the S & W Standard Undercut with many new features added for greater safety, accuracy and flexibility. Built in 56", 66", 86" and 96" widths.



**1/2 BBL BOTTOMER**

S & W Bottomers are designed for high production and minimum spoilage with many new features for lowering bag production costs. Bottomers are made in several sizes. Produce standard satchel or narrow valve bottom.

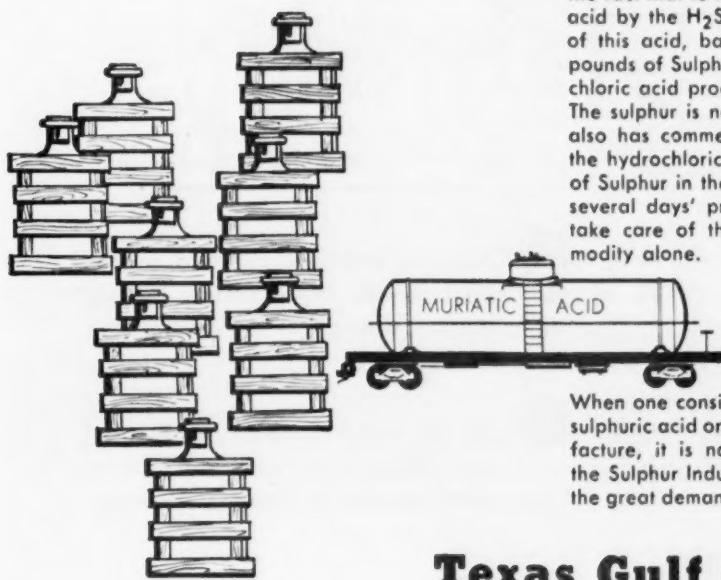
**SERVING THE PAPER AND PAPER BAG INDUSTRY SINCE 1828**

# Sulphur

*Thousands of tons  
mined daily,  
but where does it all go?*



Loading a ship with Sulphur at Galveston



**P**ARAPHRASING an old saying: 'It takes a chemical to make a chemical,' certainly applies to hydrochloric acid. No chemical engineer has to be told how hydrochloric acid is made but sometimes with the mind focussed on the word "hydrochloric" little thought is given to another word "sulphuric." It is this word that calls attention to the fact that to make one net ton of 20° Bé hydrochloric acid by the H<sub>2</sub>SO<sub>4</sub> process requires about 950 pounds of this acid, basis 100%, which is equivalent to 320 pounds of Sulphur. About one third of the annual hydrochloric acid production is made by the use of sulphuric. The sulphur is not lost because salt cake, a by-product, also has commercial value. But any way you figure it, the hydrochloric acid industry is an important consumer of Sulphur in the form of sulphuric acid. In fact, it takes several days' production from all the Sulphur mines to take care of the annual production of this one commodity alone.

When one considers all the other chemicals that require sulphuric acid or other Sulphur compounds for their manufacture, it is not difficult to appreciate how faithfully the Sulphur Industry is serving industry today in spite of the great demands made upon it.

**Texas Gulf Sulphur Co.**

75 East 45th Street, New York 17, N. Y.



Mines: Newgulf and Moss Bluff, Texas

# Mill-Demonstrated Continuous Pulping

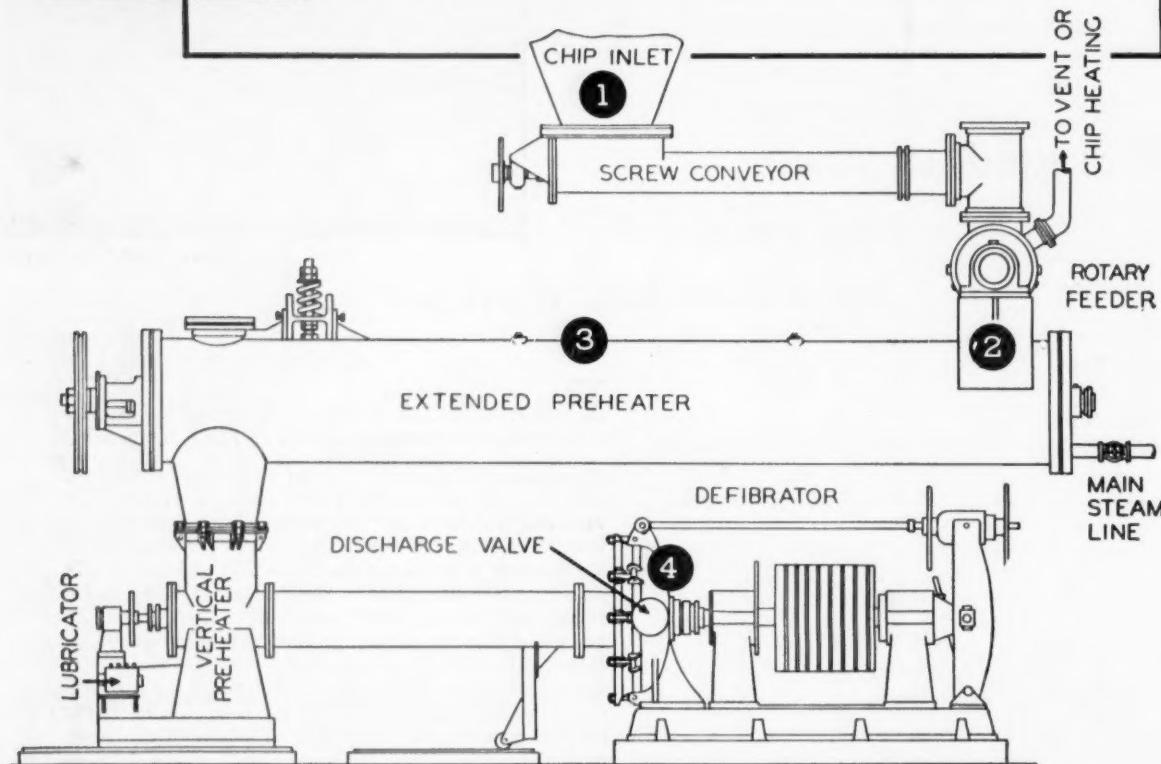
SEMICHEMICAL • NONCHEMICAL

GIVES

UNIFORMITY • HIGH YIELD

SAVES

POWER • STEAM • LABOR • MAINTENANCE



1 Drained, pre-soaked chips enter here.

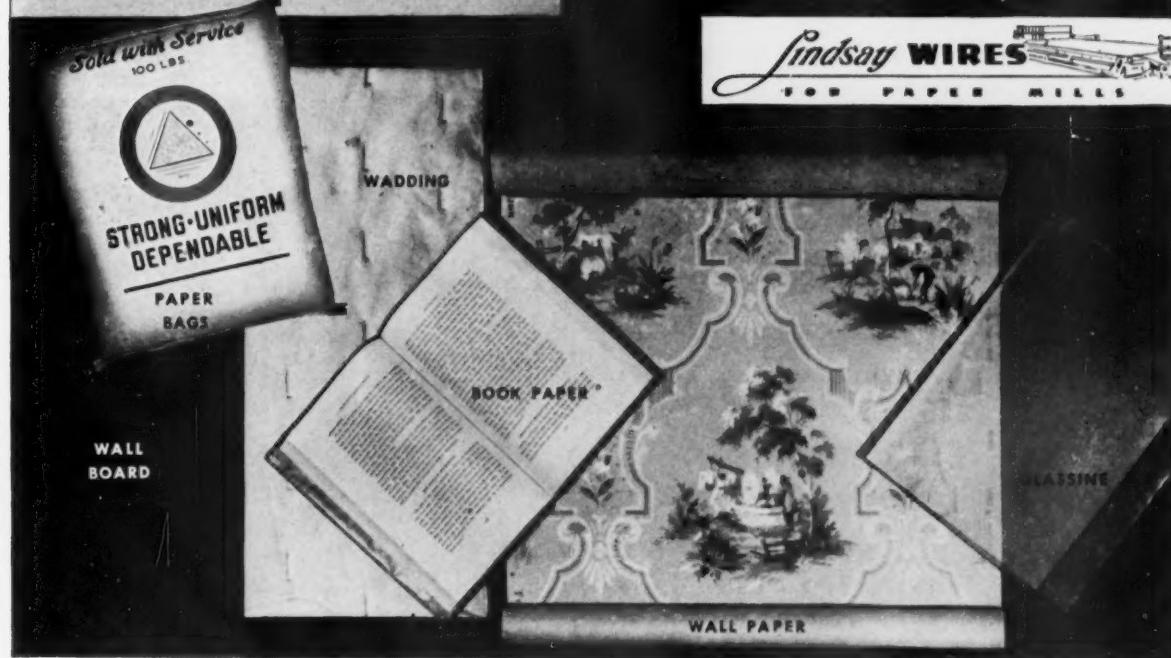
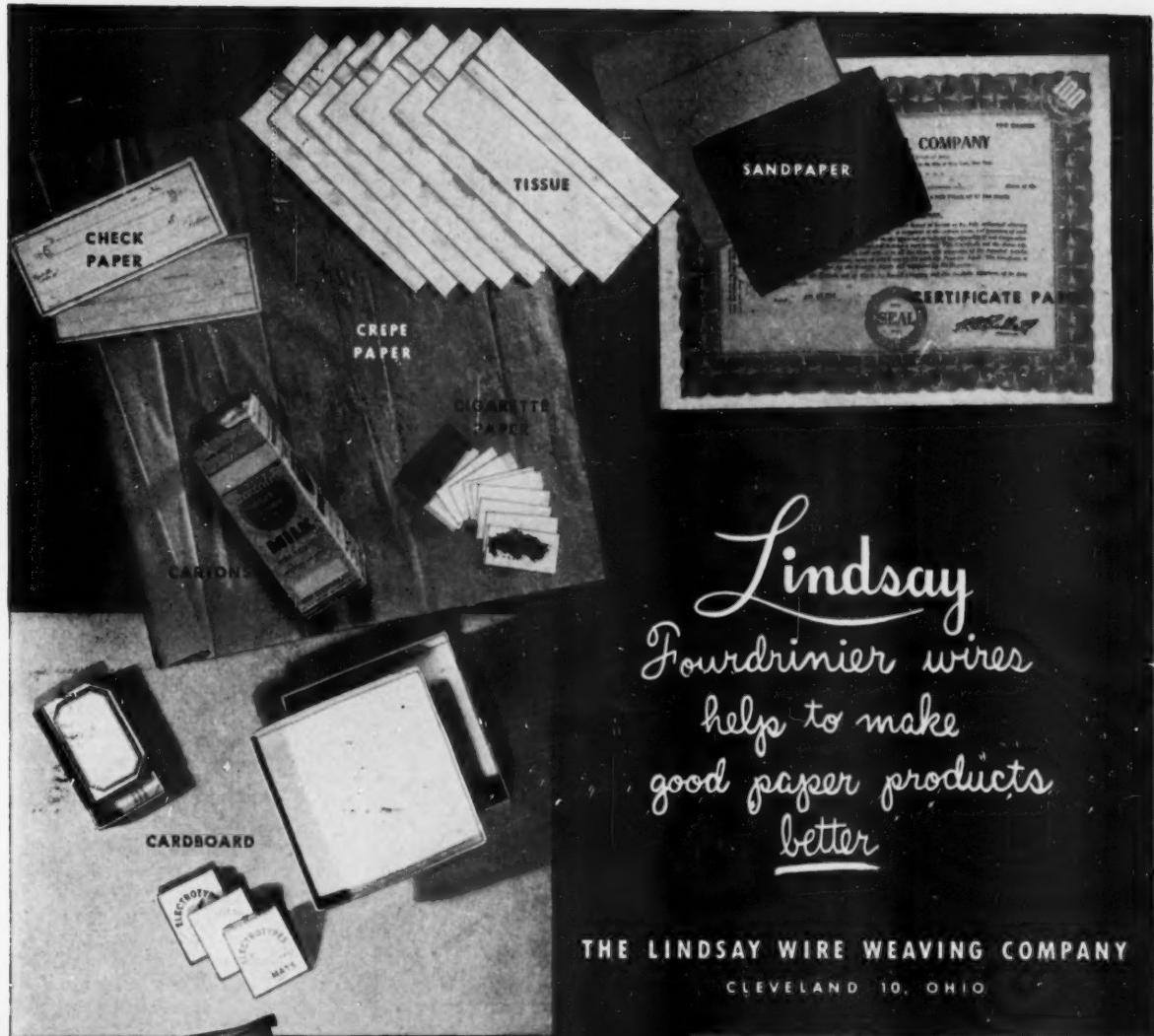
2 Rotary feeder, developed by American Defibrator, provides steam seal against pressures up to 150 psig. with no plug forming or blow-back. Chips are gravity fed without damage to fibers, change in moisture balance, or loss of liquor.

3 Chips are uniformly pressure cooked throughout as they are conveyed through the preheater, where time and temperature are controlled.

4 Softened chips are easily defibrated and pass through a blow valve to a cyclone where pulp is pumped to secondary refining.

*Further details on request.*

**AMERICAN DEFIBRATOR, INC.** CHRYSLER BUILDING West Coast: A. H. Lundberg  
NEW YORK 17, N.Y. Orpheum Building, Seattle, Wash.



## PULP & PAPER'S SPECIALLY PREPARED WORLDWIDE REPORT

# NEWSPRINT REVIEW

### THE WORLD SHORTAGE IS OVER--NOW WHAT OF THE FUTURE?

THE WORLDWIDE NEWSPRINT SHORTAGE finally ended in 1953. That was the big news in the newsprint world, after seven consecutive years in which producers, in North America especially, had used every operational trick and device to get more and more production. Each of those years broke the previous year's record until in 1952 these all-time highs were reached:

World production—estimated at 10,600,000 tons, compared with 10,252,000 in 1951; 7,084,000 in 1946 and 7,532,000 in 1935.

U.S.A. and Canada production—totalled 6,834,000 tons, compared with 6,641,000 in 1951; 5,277,000 in 1946, and 3,995,000 in 1935.

Post-war years have seen North American output climb to 64 percent of the

**BASED ON NEWSPRINT ASSOCIATION OF CANADA** data, this chart shows how trend of worldwide newsprint consumption steadily rises (dotted line) despite temporary setbacks (the war period). Also it reveals the U.S.A. consumption, since the war, has been substantially greater than all the rest of the world. What will happen, now the world shortage is over? Even during the shortage, world consumption increased an average of 565,000 tons per year (1946-52), greater than the long term average annual increase of 131,400 tons (1925-52). World consumption in 1952 reached a record high of 10,539,000 tons; U.S.A. also set a record of about 6,000,000 tons.

world total production, whereas it was only 50 percent in 1938 and 53 percent in 1935.

Consumption of newsprint in the U.S. set a new high in the first quarter of 1953, while production leveled off and declined slightly.

Mechanical devices and improvements accounted for much of the increased production in recent years as there was little incentive for building of mills to make newsprint when the markets for other types of paper, even for raw pulps, and particularly quality and dissolving pulps, was so much more appealing to investors. However, in the United States, uses of Southern pine and bleached kraft with groundwood in newsprint accounted for the construction of the first entirely new newsprint mills in that country in over a decade. The first was Coosa River, the second will be Bowater's in Tennessee, while West Tacoma Newsprint was a rebuilt and equipped idle mill. Some other mills reverted back to newsprint. Long term sales contracts made possible the U.S. expansion.

(See U. S. Section for the exclusive table showing U. S. Mills making newsprint—past and present.)

With the pressure over and no need for

government interference, if there ever was any, the United States government is still spending money in what is described as attempts to develop other sources of newsprint raw material—bagasse, grasses, etc. And pressures on Canada, led by politicians beholden to the newspapers for political support, wore Canadian tempers thinner.

Said R. M. Fowler, president of the Canadian Pulp & Paper Association, at a New York publishers meeting early in 1953, when it was obvious the newsprint shortage was over:

"If more newsprint is needed, there is no doubt that it can be provided by private initiative without the need of government promotion and assistance. I hope we will never come to a time when the free press of the world is dependent on government assistance for its principal raw material. If it ever comes, I question if the press can long remain truly free."

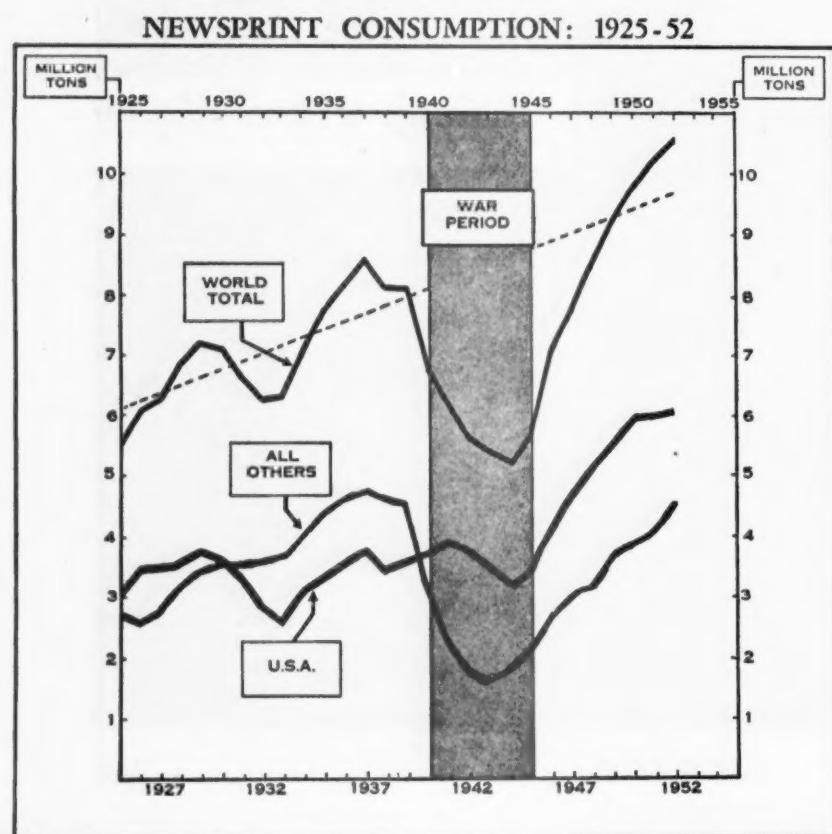
Mr. Fowler said that in view of the fact that the U.S. had been obtaining 75 to 80 percent of its newsprint requirements from Canada for many years it was strange that some politicians and publishers continued to protest against what they termed "dependence" of the U.S. on a "foreign" source of supply, and proposed various government measures by way of subsidies, loans and special tax concessions to stimulate newsprint production in the U.S. and Alaska.

Anxiety in certain circles in the U.S. about Canada as a "foreign" source had caused some concern in Canada, said Mr. Fowler, and if the attitude grew it had some undesirable political implications because neighbors and allies did not like to be regarded as foreigners and it ignored the point that to export you must import. Canada had reason to be disturbed by the sentiment he referred to because newsprint is Canada's chief export to the U.S.

"If you become self-sufficient in newsprint," he concluded, "Canada would cease to be the largest single market in the world for your exports."

Meanwhile the U.S. paper industry official leadership was itself concerned over the increasing emphasis being placed in Canada on upgrading of paper production, getting into the fine and book paper fields more actively, which would compete with U.S. grades. Developments in newsprint would tend to accelerate this trend.

March production in newsprint reversed early 1953 trends with an all-time record set for that month of 576,187 tons, of which Canada produced 484,276. However, for the first three months of 1953, North American production was down 1.8 percent from 1952's first quarter. Canadian output was down only 0.5 percent, but U.S. output was down 7.9 percent.



"Practically all of this decline," explained J. J. Zima, secretary of the Newsprint Service Bureau, New York, "is traceable to a decrease in output of so-called marginal mills and also to the fact that there was one less work-day in February this year.

"On the other hand," he said, "consumption has been greater than in any other quarter on record."

In a discussion of world trends, the Newsprint Association of Canada states:

"There have been three interruptions in the long-term growth of world newsprint consumption since 1925.

"The first interruption came with the Great Depression of the 1930's. In common with almost all other forms of economic activity, the use of newsprint declined in the depression years but it fell to a much smaller extent than most. In the U.S., for example, industrial activity dropped by 47 percent from 1929 to 1932 while newsprint consumption fell 28 percent between 1929 and its low point of 1933. This also compares with declines of 70 percent in the use of aluminum and 76 percent for steel.

"At the same time, world newsprint consumption declined only 12 percent, falling from 7,241,000 tons in 1929 to a low of 6,360,000 tons in 1932. The apparent combined consumption of all countries, excluding the U.S., actually maintained its level between 1929 and 1931, rising sharply thereafter.

"Between 1925 and 1929, 81 percent of total Canadian shipments went to the U.S. By 1935-9, the proportion had fallen to 72 percent. Because of the relative stability of world demand, Canadian shipments fell just over 25 percent between 1929 and 1932, while consumption in the U.S., hardest hit by the depression, fell 28 percent.

"The second interruption in the long-term growth trend occurred in 1937-8, when recessionary forces were again prevalent. World consumption fell 7 percent, but it still remained, in this period, above its long-term trend of growth. (See Chart). During this period, U.S. newsprint use fell 11 percent, again showing less stability than the world figures, but the level of U.S. industrial activity fell about 21 percent while steel and aluminum fell 44 percent and 47 percent respectively.

"The third interruption was during World War II. Apparent world newsprint consumption fell from roughly 8,000,000 tons in 1939 to about 5,200,000 in 1944 but consumption would undoubtedly have remained at a higher level had it depended upon demand rather than upon the supply available. After the war, recovery and growth of consumption were immediate. By 1948, supply purchased by newsprint users exceeded the prewar level, although it was still short of their needs, and substantial increases have followed in the years 1949 to date."

Canadian official industry sources estimate that United States newsprint supply from Canada in 1953 will range from 4.7 to 4.9 million tons. There is anticipated a slight increase in U.S. domestic production. Increased U.S. imports from Canada since 1945 account for almost two-thirds

#### WORLD NEWSPRINT PRODUCTION

(In Short Tons)

Country	Average		
	1935-39	1952	1953
Canada	3,336,786	5,690,000	5,700,000
U.S.A.	907,804	1,170,000	1,175,000
Argentina	0	22,000	50,000
Brazil	4,000	40,000	50,000
Chile	4,350	13,000	14,000
Peru	n.a.	500	500
Britain	961,800	380,000	650,000
Finland	436,123	463,000	468,000
Norway	205,500	173,000	175,000
Sweden	299,013	376,000	376,000
Austria	70,550	99,000	110,000
Belgium	51,820	68,000	68,000
France	360,600	355,000	355,000
German Republic	166,000	195,000	215,000
Netherlands	99,285	113,000	113,000
Portugal	0	2,000	2,000
Switzerland	34,500	35,000	35,000
Italy	74,500	129,000	129,000
Spain	27,600	26,000	27,000
Turkey	0	7,000	7,000
Egypt	0	1,000	1,000
Taiwan (Formosa) incl. in Japan	7,000	10,000	10,000
Japan	406,200	300,000	360,000
South Korea	0	15,000	15,000
Australia	0	34,000	30,000
Sub-Total	7,446,435	9,933,500	10,175,500
Germany-Sov. Zone	345,690	150,000	150,000
Poland	33,770	60,000	60,000
Russia	221,820	425,000	425,000
Bulgaria	1,630	4,000	4,000
Czechoslovakia	42,800	53,000	53,000
Hungary	5,295	6,000	6,000
Roumania	3,000	4,500	4,500
China	0	20,000	20,000
North Korea	0	n.a.	n.a.
Sub-Total	656,025	722,500	722,500
World Total	8,102,460	10,656,000	10,898,000

1952-53 estimated Source: Newsprint Association of Canada.

of the increase in total Canadian supply for that entire period.

A total of 79 percent of U.S. newsprint supply came from Canada last year and probably it will be about the same percentage this year. In 1950 it was 80 percent and that was the average from 1945 through 1949. Taking another five year period, 1925-29, it was only 54 percent. It was back in 1924 that Canadian newsprint production first exceeded that of the United States, and now it is more than five times as great.

The Newsprint Association of Canada comments on future demand:

"Current indications point to a further increase in world demand for 1953. There is in prospect a continuation of the rising post-war trend of demand although, depending to a large degree on the United States trend, the rate of increase may be smaller.

"U.S. demand for 1953 is estimated to be between 6 million and 6.2 million tons. U.S. total supply (and demand) for 1952 is now forecast at 6,110,000 tons and the 1953 projection is thus expected to be within 100,000 tons above or below this figure.

"World demand for 1953 is indicated to be between 10,775,000 tons and 10,975,000 tons. Taking the midpoint of this range, 1953 demand may be projected at 10,875,000 tons, roughly 215,000 tons above the 1952 estimate.

"For the U.S. market, the Materials Policy Commission (Paley Report) provides an estimate of consumption of 8,700,000 tons for 1975, equivalent to a 45 percent increase over the 1952 level. This estimate was reasonably consistent with other shorter projections, taking into account a probable lessening of the rate of growth over the longer period.

"The Paley estimates are predicated on

the assumption of a doubling of the U.S. gross national product in the 25 years 1950-1975 and therefore recognizes the correlation between this and the use of newsprint.

"Against a 45 percent gain in U.S. requirements, a somewhat higher proportionate increase may be assumed for all other countries. This would allow for the higher demand potential in these countries, in accordance with their present relatively low consumption rates. An increase of 60 percent appears not unreasonable. Such an increase would bring the combined requirements of these countries to 7.3 million tons and would bring total world demand to a round figure of 16 million tons by 1975."

John J. Zima, secretary of the Newsprint Service Bureau, New York, issued again his annual newsprint review this year, and as usual it contained much interesting data. He said:

"Of the 1952 North American newsprint production total, 1,147,000 tons or less than 17 percent was made in the United States while 5,687,000 tons or more than 83 percent was produced in Canada. Output in the United States was 22,000 tons or 2 percent higher than in 1951 and while greater than in any year since 1931 was only approximately two-thirds of 1926 peak volume. Production in Canada in 1952 was 171,000 tons or 3 percent above the hitherto peak volume in 1951. This was the seventh successive year of record shattering performance for the Dominion's newsprint industry.

"The North American newsprint mills in the aggregate operated in 1952 about 2 percent in excess of theoretical capacity. Despite steadily expanding capacity throughout this period from 5,574,000 tons in 1947 to 6,675,000 tons last year, 1952 was the sixth consecutive year of greater than capacity operations. It is estimated that mills in the U.S. and Canada will be capable of turning out 6,926,000 tons of newsprint in 1953. Since the only actual addition to productive equipment in 1953 will be one machine (ed.—Bowater's Calhoun, Tenn.), the quarter-million ton increase in capacity over 1952 stems principally from machine improvements and increased efficiency of operations. Further additions to physical producing equipment—mainly in the U.S.—are now underway and will not become effective until 1954 and later."

According to the Dominion Bureau of Statistics, exports of newsprint from Canada during 1952 amounted to an all-time high of 5,327,000 tons, more than 93½ percent of the quantity produced in that year. This was a gain of more than 4 percent over the previous peak of 5,112,000 tons in 1951. Of the 1952 exports, 4,851,000 tons went to the U.S. and 476,000 tons to other destinations.

Nearly 70 percent of Canadian overseas exports went, in this order of importance, to: the United Kingdom, Mexico, Australia, the Union of South Africa, New Zealand and Cuba. About 11½ percent of the overseas volume went to South American countries. Shipments to the United Kingdom in 1952 were much larger than in 1951.

Mr. Zima estimated exports of news-

print from the United States in 1952 at 102,000 tons or about 31,000 tons more than in 1951. This unexpectedly large movement was greater than in any year since 1919 and was only 9,000 tons less than in that all-time peak year. The only other year on record in which exports were higher than in 1952 was 1918. Exports in the latter part of the year were, however, considerably below the levels attained in the first half. About 65 percent went to Latin American countries and about 20 percent to Asia. Europe and Africa got less amounts.

Combined exports of newsprint from Canada and the U.S. to other parts of the world amounted to about 578,000 tons in 1952 compared with 408,000 tons in 1951.

U.S. imports of newsprint from all sources are estimated to have totaled about 4,997,000 tons in 1952. This volume exceeded anything heretofore on record although the increase over 1951 amounted to only 37,000 tons. Of this total, about 4,813,000 tons came from Canada while the balance of 184,000 tons originated in Scandinavia, and a very small amount came from Belgium.

At the end of 1952, says Mr. Zima, newsprint inventories held by consumers in the U.S. were substantially larger than 12 months earlier. The major consuming unit—the group of newspapers reporting to the American Newspaper Publishers Association—had on hand or in transit a total of 612,000 tons of newsprint on the last day of 1952. Disregarding the record tonnage accumulated by the end of 1937 in anticipation of higher cost in 1938, volume on December 31, 1952 was higher than on any corresponding date in the past—and only 2,000 tons below the comparable peak inventories referred to above. Actually, at the end of August last year stocks held by this group reached the all-time high of 660,000 tons and remained practically unchanged at the end of September.

#### Advertising and Other Facts—Significant For The Newsprint Manufacturer

Here are some random facts of significance to newsprint company executives

and their business—though not often available to them:

National advertising volume in U.S. newspapers reached a new high of \$526,000,000 and total newspaper advertising was estimated at \$2,309,000,000 for 1952! And through the first four months of 1953 Media Records said advertising in 52 newspapers was 4.3 percent higher than in 1952.

There are 168 newspapers of 1,762 in the daily field in U.S. now selling for from 6 to 10 cents a copy—the rest are 5 cents or less. Two years ago only 29 were more than a nickel. The 15 cent Sunday papers have increased from 122 to 165.

The American Newspaper Publishers Association reports its 525 newspapers used a record 4,551,000 tons of newsprint in 1952, and that this is 76 percent of the U.S. total (which would be 5,988,000, also a record).

Total number of U.S. newspapers—1,459 evening; 327, morning; 545, Sunday—more than ever before in each category.

United States Sunday newspapers averaged 116 pages per issue in 1952, a record. Weekday papers averaged 36 pages since 1950, also a record.

English language morning and evening (combined) papers averaged a total of 53,951,000 copies, just 0.3 percent off the preceding year record, and Sunday paper, 46,210,000 copies, down slightly from a 1950 peak.

Printers' Ink recently reported \$7,219,600,000 (McCann-Erickson research report) spent for all kinds of business publicity in 1952, 11 percent higher than 1951 and a record.

Broadcasting Yearbook reports radio time sales in 1952 at \$464,439,000, up 1.7 percent over 1951, though volume dropped 13.1 percent. This is a little over 6 percent of the Printers' Ink figure for all advertising.

Number of homes equipped with television increased by 40 percent to nearly 21,000,000 in 1952.

#### U. S. and British Paper Making Compared

Reports of a European ECA mission after a United States tour were analyzed at a British Paper & Board Makers Association meeting in London. Sven A. Quist, of Vancouver, B.C., attended the meeting and he reported the speaker, H. M. Archibald, emphasized the wide discrepancy between consumption of pulp and paper products in the U.S. (375 pounds per capita) and the United Kingdom (135 pounds) and the need for the British industry to simulate the efficiency observed by the committee in the U.S., where effective use of automatic controls was particularly impressive.

Discussion on instrumentation, according to Mr. Quist, disclosed that most British operators as yet lack sufficient confidence in instruments and controls to use them extensively, although well aware of their potential value. Considerable interest was shown in pressure type stock inlets for paper machines at all ranges of speed. The couch vacuum pick-up was also given considerable attention.

**EQUIPMENT  
RAW MATERIALS**

**For Pulp  
and Paper  
Mills**

**MACHINE CLOTHING  
SUPPLIES**

**Pacific Coast Supply Company**

**SAN FRANCISCO • PORTLAND**



## "Our Camachine 14 handles 70 tons of asbestos paper a day

—keeping well ahead of the  
paper machine output"

says R. D. DEININGER, plant manager

Sall Mountain Company, Hamilton, Ohio

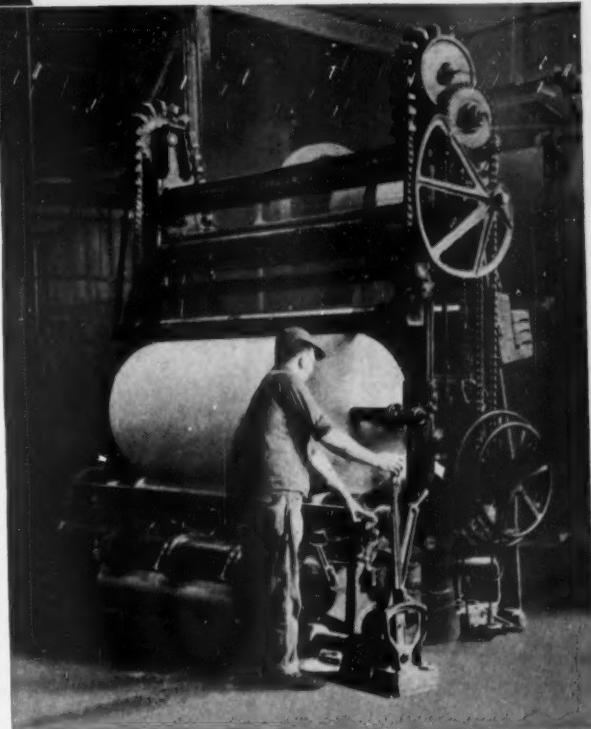
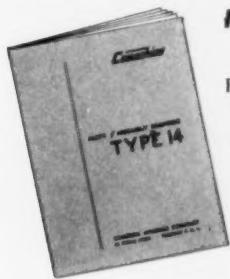
"Our paper machine department faced a twofold problem . . . increased production and more exacting roll specifications. With equipment then operating, rejects through slipped or spliced rolls were alarming and maintenance was excessive.

"Cameron engineers provided a Type 14 equipped with shear-cut slitters to wind our 'Sal-Mo' asbestos paper (in a caliper range of .012 to .125) in rolls of varying width and diameter.

"Our Camachine 14 readily filled the bill and 'Sal-Mo' customers continued to receive the quality goods made popular by this famous name in the asbestos industry."

### MEN AT WORK — to cut your costs!

For example, Camachine engineers have recently completed new parts catalogs covering most mill-type models. These carefully illustrated books provide fast, easy, accurate reference to any part of the machine. Write for information.



Camachine Type 14 in action at Sall Mountain Company's Hamilton plant

CAMERON MACHINE COMPANY • 61 Poplar Street • Brooklyn 1, N. Y.

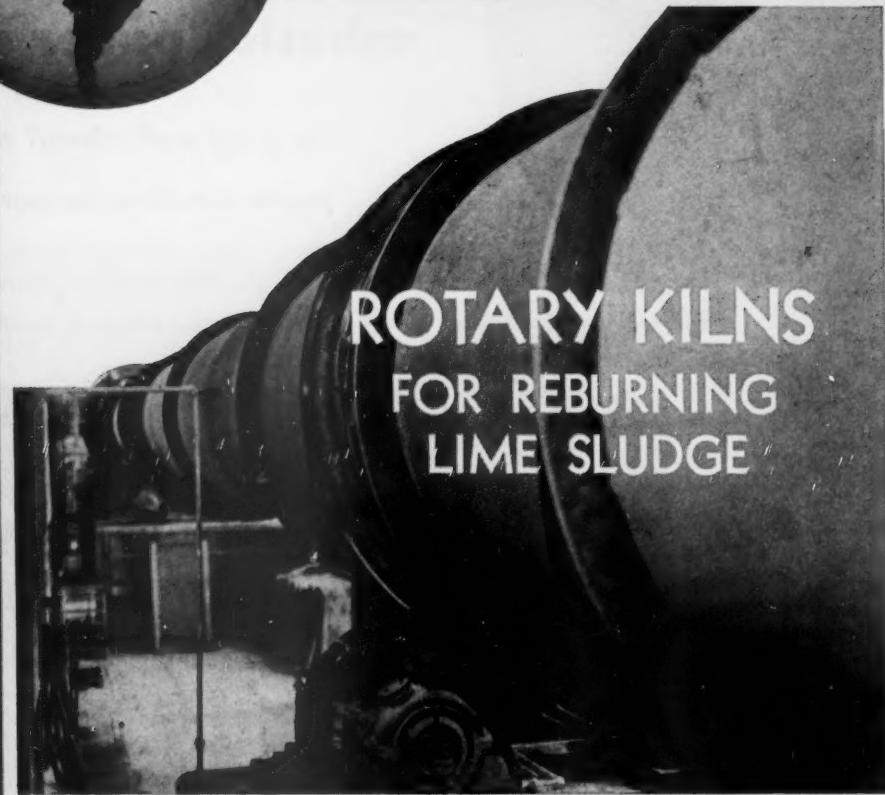
Don't wind up with less than a **Camachine®**

• AA-278

representative: pacific coast supply company • public service building, portland 4, oreg. • 260 california st., san francisco 19, cal.

# SMIDTH

## ROTARY KILNS FOR REBURNING LIME SLUDGE



The illustration above shows a modern Smidth rotary kiln for reburning lime sludge at the plant of the Consolidated Paper Corp., Ltd., Three Rivers, Que., Canada.

F. L. Smidth & Co. are specialists in the design and manufacture of rotary kilns and have furnished numerous installations in many countries for burning lime, lime sludge, dolomite, magnesite, cement, ores, etc.

### For Smidth Machinery apply to:

**F. L. Smidth & Co., A/S**  
Vestergade 33,  
Copenhagen K, Denmark

**F. L. Smidth & Co.**  
11 West 42nd Street  
New York 36, N. Y.

**F. L. Smidth & Co., Ltd.,**  
105, Piccadilly,  
London, W. 1, England

**F. L. Smidth & Cie France**  
80 Rue Taitbout  
Paris (9e) France

**F. L. Smidth & Co. of Canada, Ltd.**  
11 West 42nd Street  
New York 36, N. Y.

**F. L. Smidth & Co. (Bombay) Ltd.**  
42 Queen's Road  
Bombay, India



# TREE FARMS... AMERICAN SIZE

On more than 23 million acres of privately owned forest lands, men are growing and harvesting timber as a crop. The owners of these tree farms are pledged to protect their timber from fire, insects and disease . . . thus assuring crop after crop of trees for use in wood products for you and your children.

In the Northwest, timber owners have combatted the ravages of the spruce budworm. One large-scale program in the States of Washington and Oregon has conserved more than 40 billion board feet of otherwise doomed timber.

Aerial spraying of insecticide did the job. This Pennsalt-produced insecticide proved 99% effective, at an average cost of little more

than \$1.00 per acre. The timber saved from potential destruction is conservatively valued at \$785 per acre.

No doubt, similar methods could prove equally effective in ridding other forests of insects and disease . . . which annually destroy 30% more timber than forest fires. Pennsalt technicians will continue to offer their assistance on these problems from coast to coast.

**In the West:**

**Pennsylvania Salt Manufacturing Company  
of Washington**  
Tacoma, Wash. and Portland, Oregon

**In the East:**

**Pennsylvania Salt Manufacturing Company**  
Philadelphia 7, Pa.

*Timber is a crop . . . let's protect it*

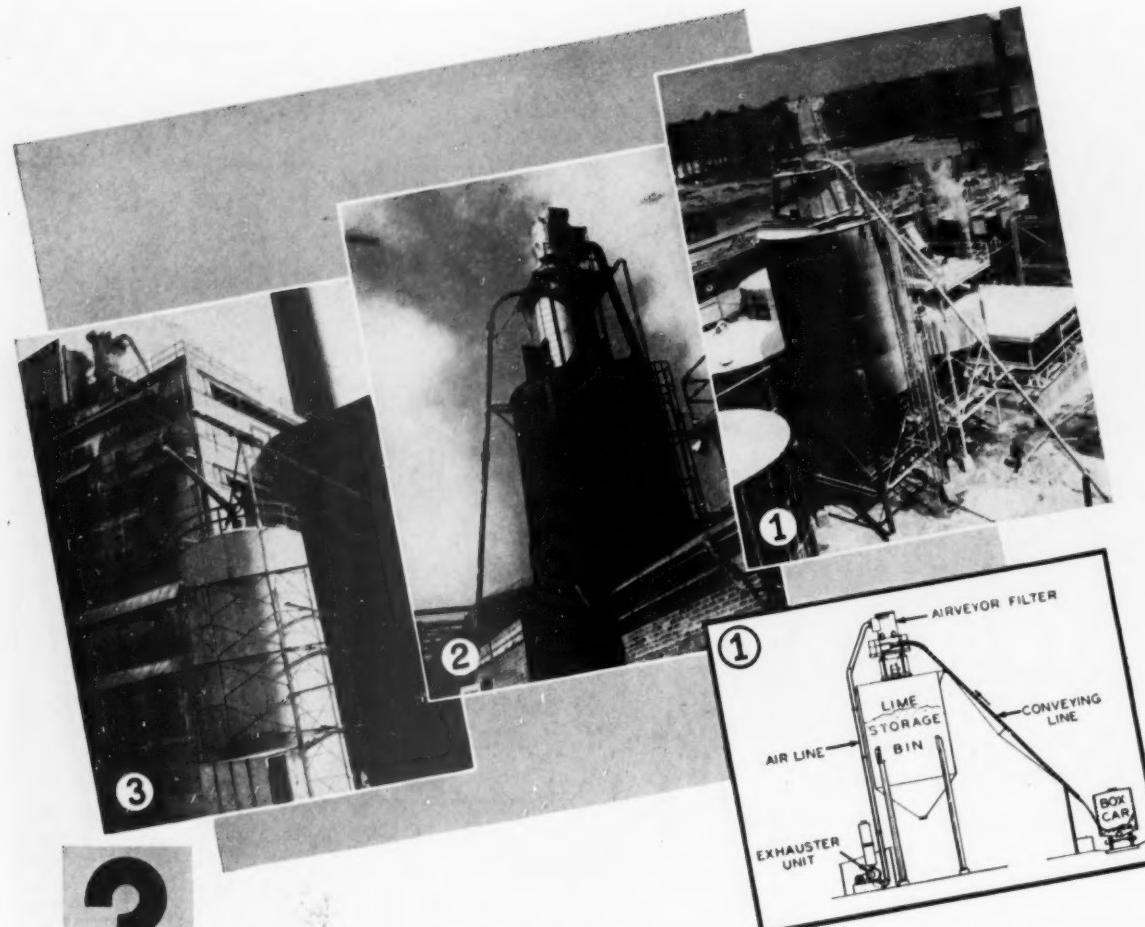
PRODUCERS OF

LIQUID CHLORINE • CAUSTIC SODA • BLEACHING POWDER • POTASSIUM CHLORATE •  
SODIUM CHLORATE • ANHYDROUS AMMONIA • PERCHLORON® • SODIUM ARSENITE  
• SODIUM HYPOCHLORITE • MURIATIC ACID • SULPHURIC ACID • ANHYDROUS  
HYDROFLUORIC ACID • ACID-PROOF CEMENT • DDT • PENCO FOREST SPRAY



**Pennsalt  
Chemicals**

Progressive Chemistry for Over a Century



**3**

## AIRVEYOR<sup>®</sup>

### SYSTEMS

work for **RIEGEL-CAROLINA**

When the new 200-ton pulp mill of the Riegel-Carolina Corporation, Acme, North Carolina, was designed and built, they selected and installed Airveyors for handling mill-supply chemicals.



A-165  
1943

DRY MATERIAL CONVEYING SYSTEMS AND COOLERS . . . COMPRESSORS AND VACUUM PUMPS . . . FEEDERS AND ASSOCIATED EQUIPMENT

170

PULP & PAPER

1953 Review Number

#### 3 Airveyors are in use:

**1** Unloading pebble lime to storage for use in the caustic plant. Unloading rate 10 tons an hour.

**2** Unloading pebble lime and soda ash to storage for use in the bleach liquor making plant. Capacity 7½ tons an hour.

**3** Unloading salt cake to storage, reclaiming from storage for delivery to mix tank in the Kraft mill recovery building. Handles 7½ tons an hour.

Many important pulp and paper mills throughout the country are finding new savings with Fuller Airveyor systems for the handling of raw paper-making materials. Each installation is custom-built to meet specific requirements, determined, after careful study, by Fuller engineers, with years of experience in the field of pneumatic conveying. Fuller engineers are at your service, to offer their advice, without any obligation. It could be a means of finding new cost savings in your materials-handling operations.

**FULLER COMPANY, Catasauqua, Pa.**

#### Branch offices

Chicago—San Francisco—Los Angeles—Seattle—Birmingham

# Non-Paper Cellulose

## RAYON, ACETATE, CELLOPHANE, PLASTICS, ETC.

By Rex Vincent

Technical Director, Bulkley, Dunton Pulp Co., Inc.  
(Written Especially for PULP & PAPER'S 1953 Review Number)

REX VINCENT, author of this article for WORLD REVIEW, stresses plentiful world supply.



JUST ONE YEAR AGO, when this section was being written for PULP & PAPER's 1952 World Review Number, it seemed as though the dissolving pulp producers were heading for an overexpansion. It was stated then that "there should be ample supplies for American users for at least five or six years to come." This appears to be happening and the potential supply will probably be able also to cover world users. This is attested by the new mills and capacities coming into production.

The manner in which the increased production will be absorbed opens up some interesting speculations. What avenues will be followed to encourage increased uses of purified wood cellulose? Will the producers endeavor to develop new grades for the paper fields? Will there be quality improvements in woodpulp which will enable it to become a still larger source of cellulose for rayon acetate? The next five years promises to be a most interesting period to the observer because there are bound to be some new developments with a large and continuous source of supply guaranteed.

The capacity for viscose-acetate type pulp (purified wood cellulose) will be close to the figures worked out below.

(In Thousands of Short Tons)

Producers	1953	1954	1955
United States	847	1,034	1,159
Canadian	476	516	516
Total North America	1,323	1,550	1,675

Thus North America will have, by 1955, a capacity to produce nearly 1,700,000 tons per year of the purified grades of pulp; this capacity is an increase over 1952 production of 570,600 tons or 54 percent.

In reviewing the statistics last year, three points were made and these can be repeated as they still are in evidence:

1. Imports into the U.S. are steady down and are demonstrating a decreasing trend.

2. Exports continue to rise.

3. The production of these pulps in the U.S. continues upward.

TABLE I  
U.S. PURIFIED WOOD CELLULOSE  
(In Short Tons)

Year	Production	Imports	Exports	Net Available
1938	171,650	65,220	72,800	164,070
1940	288,500	113,945	115,204	287,241
1943	369,731	129,380	22,884	476,226
1944	429,545	132,675	10,729	551,491
1945	355,820	146,030	13,030	488,820
1946	295,680	198,540	9,300	484,920
1947	408,460	248,070	14,570	641,960
1948	421,924	239,842	14,665	647,101
1949	371,422	154,348	3,857	521,913
1950	473,210	238,856	27,284	684,781
1951	615,776	230,038	32,944	812,920
1952	705,825	233,340	61,850	867,315

Source: U.S. Pulp Producers Assn.

These statistics are shown in Tables I, II and III. The noted trend of decreasing imports is important because practically all of these come from Canada, and they have formed an important part of the U.S. supply. They are now on the decline and probably in the future, as production increases in the U.S., they will decline further, although the Canadian producers possess admirable relationships with their American customers.

### Competition for Market

As these shipments to the U.S. decline, the Canadian producers will look overseas for customers and they already have a good market there. In 1952 U.S. exports overseas amounted to 61,850 tons, while Canadian exports overseas were 119,630 tons. The competition for those markets will be very keen because American sellers will also be looking for business. In England and on the Continent all three major producers—Canada, the U.S., and Scandinavia—will meet in the struggle for business; and the North American exports in 1952 were equal to about 30 percent of the estimated Scandinavian capacity for these pulps.

At this point an interesting speculation appears. It has long been recognized that there are basic differences between Scandinavian and North American dissolving pulps due to natural differences in the wood. These differences are in favor of the North American pulps, and if competition becomes keen enough, the Scandinavians may find it advantageous to revert to paper pulp for which their wood is admirably suited. This increased paper pulp would, of course, be offered heavily to the U.S., and while dissolving pulp competition would be keen from all three producers abroad, paper pulp competition from all three would be keen in the U.S. North America can become the major supply source of the world for purified woodpulps as time goes on and in case of war, with exports shut off, will have ample supplies to take care of most all its own needs.

The requirements of nitrocellulose for smokeless powder should not be exaggerated when considering the supply of dissolving woodpulp because it would take a world-wide conflict of major proportions to use enough woodpulp to cause severe shortages for normal uses. Cotton is still the preferred raw material for smokeless powder and other propellants, and woodpulp is only used to supplement the supply, or in some cases to reduce costs. The time factor for these statements is, of course, the next ten years.

TABLE III  
NORTH AMERICAN PURIFIED WOODPULP (TONS)

Year	Production	Imports	Exports	Net Available
1946	555,000			60,000
1947	707,000	23,700	56,000	674,700
1948	754,000	14,900	80,400	688,500
1949	620,930	4,550	83,150	542,330
1950	796,312	9,745	83,149	722,908
1951	1,014,240	4,152	151,029	867,363
1952	1,129,400	3,317	181,471	951,245

Source: USPPA.

TABLE II  
U. S. PURIFIED WOODPULP IMPORTS  
(By country of origin—Short tons)

	1948	1949	1950	1951	1952
Canada	224,942	149,801	229,102	225,836	220,010
Sweden	9,080	3,888	2,177	3,683	2,240
Finland	3,718	—	158	—	—
Norway	2,101	—	1,021	475	307
Others	—	—	1,398	94	770
TOTAL	239,841	154,348	238,856	230,088	223,337

Source: USPPA.

The term "net available" as used in these tables is a slight misnomer, and it should be interpreted to mean that quantity which was purchased by the consumer or placed in inventory by the producer. Again there is a difference between the net available for the U.S. (Table I) and net available for North America (Table II) amounting to 83,951 tons. This quantity represents shipments inside Canada of 40,000 tons and a balance of 43,950 tons which were either in transit, that is, reported as being shipped by the producing mill but not reported as being received, or in inventory at the producing mill, or stored in transit.

It was stated above that by 1955 the North American capacity for these pulps will be approximately 1,700,000 tons. On this same basis of analysis annual capacities for several years are as follows, all on the basis of 345 days per year, short tons, and air dry pulp.

**TABLE IV**  
**U.S. AND CANADIAN CAPACITY FOR DISOLVING WOODPULP**

(In Thousands of Short Tons)

	1951	1952	1953	1954	1955
U. S.	620	740	860	1,113	1,163
Canadian	420	440	490	515	515
Total	1,040	1,180	1,350	1,628	1,678

These are the figures for the weight on the supply side of the equation for supply-demand; now for a brief review of the weights on the demand side.

The consumption of pulp by the rayon-acetate industry is the key to this as it normally uses about 60 percent of the purified woodpulp production. The peak consumption of woodpulp by this industry was 515,500 tons in 1951 and in that year woodpulp formed 84 percent of the total cellulose consumed, the balance being cotton linter pulp. In 1952 the woodpulp consumed was 484,700 tons and the proportion to the total was 88 percent. This is as high as the percentage has ever been and was only this high once before, in 1942.

#### Rayon-Acetate Ratio

But for the sake of this analysis, let us assume that this figure will be maintained. Another factor is necessary and that is the pounds of pulp required to make a pound of yarn. For viscose this is 1.06 and for acetate, 0.66. In 1951 the total rayon-acetate production (exclusive of waste) was 647,100 tons and was divided into 214,400 tons of acetate and 432,700 tons of viscose or 33 percent acetate and 67 percent viscose. These percentages are derived from the boom year for the industry and if they are applied to the factors for cellulose required for yarn production we arrive at a single figure of 0.93 pounds of pulp for a pound of yarn provided that the ratio of viscose and acetate remains the same. Actually, in recent months, acetate has suffered more than viscose and thus this factor is on the favorable side because the higher the viscose proportion becomes, the higher this figure would get.

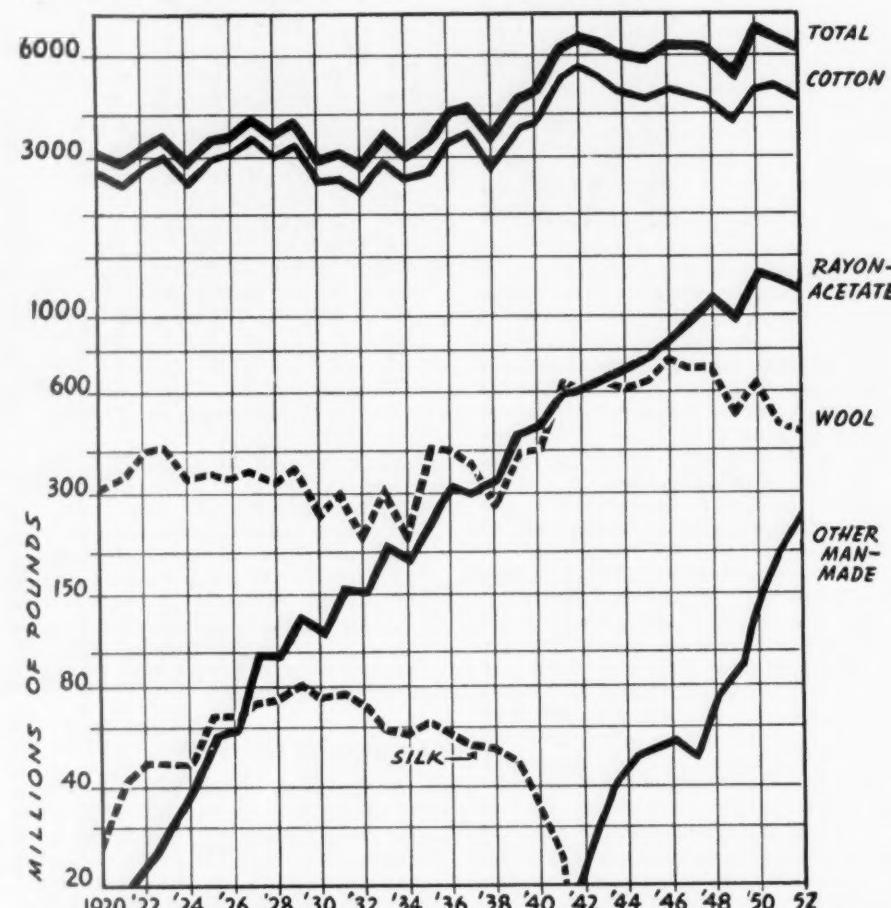
In Dec. 1951 Textile Organon indicated

#### UNITED STATES—CONSUMPTION OF COTTON, WOOL, RAYON, ETC.

This chart by PULP & PAPER'S ARTIST based on data from the Textile Economics Bureau, Inc., shows how Rayon and Acetate fibers, largely made from woodpulp, have climbed spectacularly in total consumption in comparison with other fibers. In the 1940's it passed wool. It challenges cotton. It passed silk in 1926. But there is a new threat—other man-made fibers which include Nylon, Orion, Dacron, Chemstrand made from coal by-products and other synthetic materials.

Here is the record of U. S. consumption for recent years, including last year:

	Millions of Pounds Used			Percentage of Total		
	1950	1951	1952	1950	1951	1952
Cotton	4,680.1	4,908.0	4,479.0	68.5	71.2	69.6
Wool	647.0	495.0	473.7	9.5	7.2	7.4
Rayon-Acetate	1,351.4	1,276.1	1,212.5	19.8	18.5	18.9
Other						
Man-Made	145.0	205.0	260.0	2.1	3.0	4.0
Silk	8.4	5.6	6.9	0.2	0.2	0.2



that the rayon-acetate capacity would be 755,000 tons by July, 1952 and 851,000 tons by October, 1953. Let us assume that there are no further increases in this capacity and that in 1955 it is able to operate at 85 percent of capacity. That would mean a production of 723,350 tons and, using the factor of 0.93, it would require 672,700 tons of cellulose. If 88 percent of this is woodpulp, it indicates a requirement of 592,000 tons.

Now another assumption: 1955 is only two years away and in that time we will assume that there will be no new development in the overall consumption of purified woodpulp so that rayon-acetate will still consume 60 percent of the total. This would mean a total consumption in 1955 of 987,000 tons and to this we will add 75,000 tons as shipments inside Canada and "in-transit" stocks, making a total of 1,062,000 tons. Oppose this to the 1955 capacity of 1,700,000 tons; and if the

pulp producers operate at 90 percent of capacity, it means 1,530,000 tons or a surplus of 468,000 tons which could be exported from the continent.

This is almost three times what was exported in 1952. It is very doubtful that the world trade problem can be eased sufficiently in two years to make this possible. In a broad, overall total industry view this isn't too bad; it means a ratio of operation to capacity for the pulp producers of about 75 percent for the total. Not every mill will run this well, of course. Some individuals (mills) will be better off than others and those which suffer most will be the ones who will be forced to break the smooth, even price pattern which has endured unchanged for over two years.

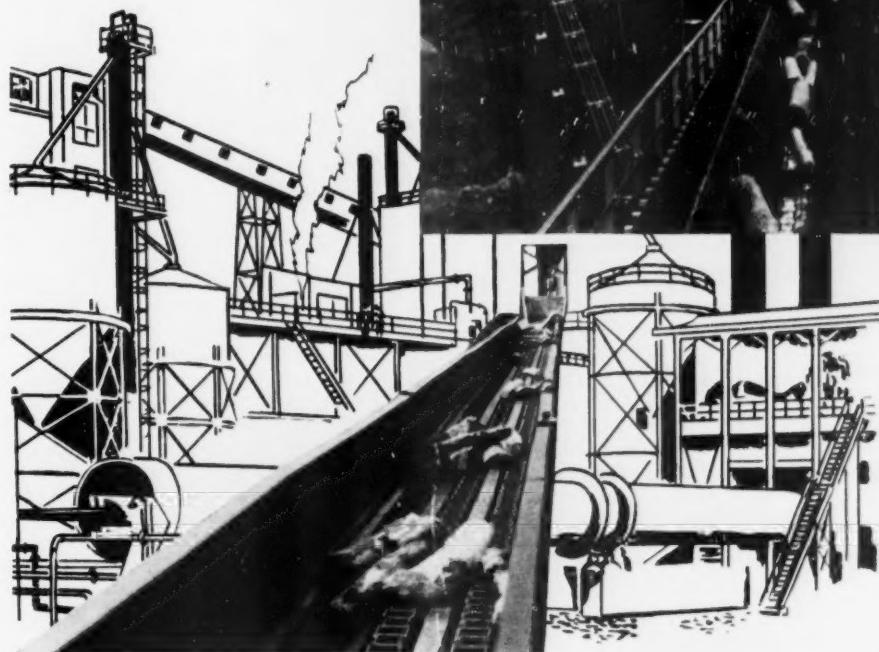
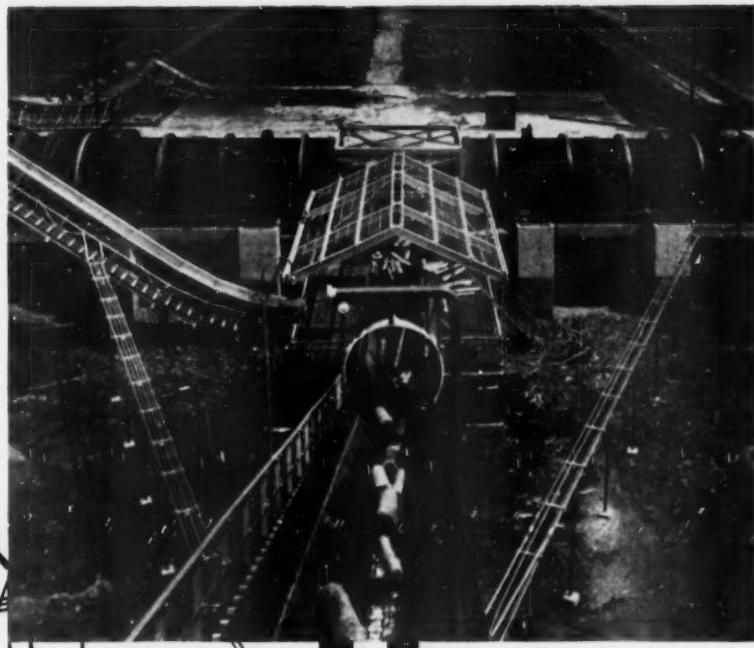
#### Sulfite-Sulfate Competition

Another facet of this interesting picture is the coming competition between

# modern mechanization from pulpwood to paper

Look to Jeffrey for the latest improvements in material handling—whether for logs, pulpwood or finished product.

When it comes to feeding, crushing, shredding, conveying or elevating—Jeffrey has both the experience and equipment to help step up production in pulp and paper mills.



Chain Conveyors  
Belt Conveyors  
Spiral Conveyors  
Chemical Feeders  
Bucket Elevators  
Barge Unloaders  
Crushers and Shredders  
Re-chippers  
Log Haul-ups  
Transmission Machinery



## THE JEFFREY

IF IT'S MINED, PROCESSED OR MOVED  
...IT'S A JOB FOR JEFFREY!

ESTABLISHED 1877  
MANUFACTURING CO.

Columbus 16, Ohio

sales offices and distributors  
in principal cities

PLANTS IN CANADA, ENGLAND, SOUTH AFRICA

**TABLE V**  
**CELLULOSE IN THE U.S.—ACETATE\* RAYON INDUSTRY**

Year	Rayon-Acetate Production (Tons)	Woodpulp Consumed (Tons)	%	Linters Pulp Consumed (Tons)	%
1930	63,850	45,000	62	27,000	38
1935	131,077	86,000	63	51,000	37
1940	235,585	178,000	75	60,000	25
1942	316,308	280,500	88	39,500	12
1944	361,977	285,000	78	82,000	22
1945	396,000	297,000	74	103,000	26
1946	427,000	323,000	75	105,000	25
1947	478,000	397,000	83	81,000	17
1948	539,500	435,000	81	104,500	19
1949	476,600	348,700	73	127,900	27
1950	590,600	456,200	77	134,400	23
1951	616,300	515,500	84	100,800	16
1952	549,500	484,700	88	64,800	12

(Including yarn, staple, tow and waste, the total figures for production were 579,750 in 1952; 659,150 in 1951)

Source: *Textile Organon*. \*U.S. Federal Trade Commission has ruled the rayon is viscose; acetate is acetate.

**TABLE VI**  
**U.S. Rayon-Acetate Production by Types**  
(Short tons)

	1949	1950	1951	1952
Viscose & Cupra-				
ammonium Filament	272,150	313,500	329,050	297,250
Acetate Filament	127,500	163,500	150,050	117,150
Viscose staple & tow	64,900	94,500	103,650	105,900
Acetate staple & tow	32,350	58,500	64,350	47,600
Total	496,900	630,000	647,100	567,900
(Does not include rayon waste)				

sulfite pulp and sulfate pulp. The sulfate pulp produces a stronger yarn and is gaining ground rapidly in the large tire cord field. In 1952 tire cord represented two-thirds of the total viscose yarn produced amounting to slightly over 200,000 tons.

In Table V are the general statistics for rayon-acetate cellulose consumption. The rayon-acetate production, including waste, is down 12 percent from 1951 but the consumption of woodpulp is only down 6 percent from 1951; the compensating drop was in cotton linter pulp which dropped nearly 36 percent and formed only 12 percent of the total cellulose used. All during 1952 linter pulp was freely offered, there was no restriction on its use except its price. This shift, established in 1951, gives indication of continuing and by the end of 1953 the percentage of woodpulp could easily be 90 percent. This will be almost inescapable as long as the government supports the price of lint at 5 cents per pound, giving a purified linter pulp price of about \$257 per ton delivered. Acetate grade woodpulp is priced at \$225 delivered.

In 1952 woodpulp represented 88 percent of all cellulose consumed by the viscose process, indicating that linter pulp is still being used in tire cord yarns. This amounts to about 53,000 tons of linter pulp which will gradually go to woodpulp as its quality increases and it will also probably go to the sulfate viscose pulps.

In the acetate process the use of woodpulp jumped from 71 percent in 1951 to 93 percent in 1952, and as far as yarn and staple are concerned, the use of woodpulp

can probably go to 100 percent but linter pulp will still be required for production of acetate flake that is converted to certain plastics and heavy films. The industry consumed 56 percent of the dissolving and special alpha pulp produced in the U.S. in 1952 but that figure is higher if referred to the pulp consumed instead of pulp produced because of sizable portion of that pulp production went into inventory at the producing mills and at consumers' plants.

In Table VI is a breakdown by process of the rayon production in recent years but in a more detailed breakdown by *Textile Organon* the differences between 1951 and 1952 are interesting. They show high tenacity viscose filament yarn up 24 percent, regular viscose filament yarn down 44 percent, acetate filament yarn down 22 percent, total rayon and acetate filament down 14 percent, total staple and tow down 9 percent, but viscose staple and tow was up 2 percent while acetate staple and tow was down 26 percent.

In analyzing the North American supply-demand equation we found that by 1955 there would be an exportable surplus of about 470,000 tons. Now it is necessary to look at the rest of the world and the supply-demand equation to see what the possibilities are for that export. In Table VII are some figures that give an idea of the woodpulp supply side for the rest of the world in 1955. Where figures for 1952 production are available, they are shown in parenthesis behind the estimated capacity figures for the different countries.

The "rest of the world" produced 1,331,400 tons of rayon and acetate in

1951 and 1,132,100 tons in 1952. A liberal estimate of world capacity for rayon acetate production in 1955 has been made by others as 1,777,550 tons but it is doubtful if this capacity will be operable at any one time. If we take a figure halfway between the peak year of 1951 and this estimated figure, we have a maximum probable production of about 1,555,000 tons. On a normal basis this production of rayon would consume about 300,000 tons of cotton linter pulp, leaving about 1,300,000 tons for woodpulp.

The unknown factor is the amount of pulp consumed in the "rest of the world" by cellophane and the derivatives but if we work on the same proportion as has shown up in the past few years we can get a ratio for these estimates.

#### World Deficit Projected

In 1951 the entire world produced 2,152,000 tons of dissolving pulp and this supported a world rayon production of 1,978,500 tons plus the production of cellophane and the derivatives. During that year there was very little accumulation of inventory anywhere so if we apply the same proportion to the rayon-acetate figure developed for 1955, it would require 1,870,000 tons and this demonstrates a world deficit for 1955 of about 195,000 tons. This, of course, is derived, in this analysis, from optimum conditions of operation and in all likelihood those conditions will not be attained in 1955. World trade situations are not sufficiently smooth to permit it for one thing, and in order for many European countries to operate at these levels, they must export large quantities of the rayon-acetate yarn and staple produced.

Therefore, under the most favorable conditions, with all the world's capacity (exclusive of North America) operating at full capacity rates for the production of rayon-staple and with cellophane and the derivatives taking the same proportionate amount they did in 1951 and with the North American producing mills running at only 90 percent of capacity, there would be a deficit of 195,000 tons.

Statistics for cellophane in the U.S. are still unavailable since there are only three producers—Du Pont, Sylvania Division of American Viscose, and Olin Industries. New facilities for production

**TABLE VII**  
**Estimated World Dissolving Woodpulp Capacity for 1955**  
(Short tons)

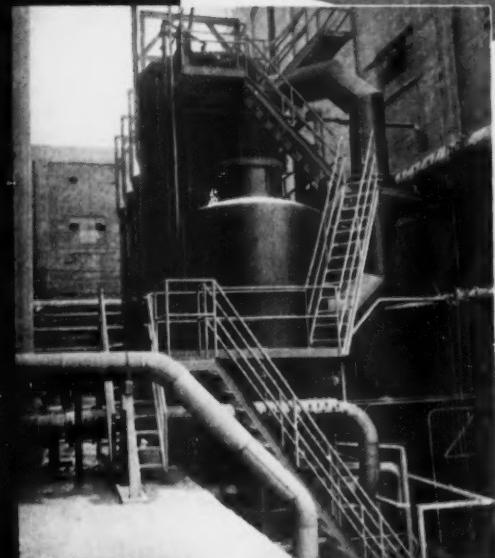
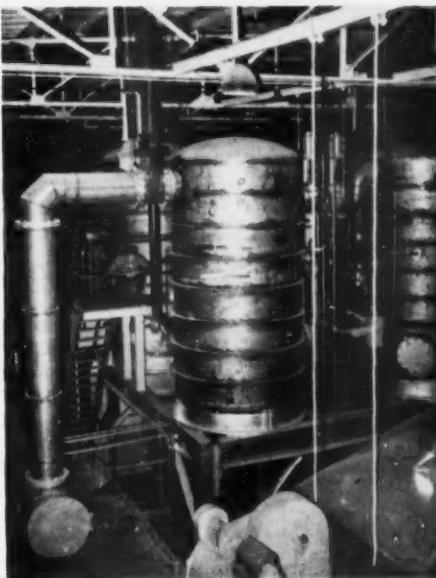
	1955 Capacity	1952 Production
Exportable Surplus		
from N.A.	470,000	n.a.
Sweden	460,000	(362,375)
Norway	140,000	(122,000)
Finland	125,000	(93,940)
Germany		
(Western Zone)	150,000	(110,000)
Austria	65,000	n.a.
Italy	55,000	n.a.
Japan	210,000	n.a.
Total	1,675,000	
n.a.—not available.		

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have been added to all these plants, and capacity is estimated to be close to 340,000,000 lbs. per year.

#### Cellophane vs. Glassine

The producers continue to find new uses for this versatile transparent film but coming soon is a real competitive battle between cellophane and glassine paper, in which there have been some recent innovations, most important of which is the use of the semichemical pulps, reducing the cost of the pulp and also power requirements. The competition can be seen, for example, on frozen food packages. Some have an outer wrap of cellophane, some waxed paper, and a few are using glassine. One area where this competition will be seen soon is in the inner-wrap for such foods as cereals and crackers. However, the production of cellophane continues to rise and it is estimated that in 1952 the use of woodpulp amounted to 160,000 tons. In 1948 this was estimated at 110,000 tons and in 1950, 135,000 tons.

When one goes after statistics for the plastics and derivatives, one wanders amid a jungle of confusion. Plastics are lumped together and film is excluded; the derivatives are reported on several different bases, and only estimate and guess can be used to determine the amount of woodpulp consumed by each. Those compounds regarded as plastics are cellulose nitrate, cellulose acetate, butyrate, and ethyl cellulose. Statistics for these are reported in pounds of the plastic materials themselves which includes the plasticizers, fillers, and other materials. Reported as chemicals are carboxymethylcellulose and hydroxyethylcellulose. The writer could find no figures for the latter and nothing later than 1951 for the former. Some of these are reported as 68 percent and some of them as 100 percent CMC. There are no figures for photographic film later than 1947 when it was reported as 619,000,000 sq. ft. For your information, in that year there was 102,000,000 sq. ft. of X-Ray film and 451,000,000 sq. ft. of amateur and professional film. Don't worry about the balance.

In the table below are shown the amount of cellulose plastics produced in 1951 and 1952. This data covers the plastic material and includes the weight of all additives which in some cases amounts to 50 percent of the weight. These are from Tariff Commission reports.

	(In Short Tons)	
	1951	1952
Cellulose Acetate	48,708	42,724
Cellulose Nitrate	3,805	3,010
All other Cellulose	5,972	3,326
Total	58,485	49,060

It is estimated that this production of plastics required 13,000 tons of woodpulp.

#### New Cellulose Compound

Carboxymethylcellulose is the newest compound of cellulose to gain wide commercial production. Today it is being produced by Hercules Powder Co., Du Pont,

Buckeye Cotton Oil, and Wyandotte Chemicals Corp. The new detergents, which have captured a large portion of the markets formerly held by soap, depend to a great extent on the action of CMC to hold the dirt colloidal condition. Production in 1950 was 7,845 tons; in 1951, 8,350 tons, and it is estimated that 1952 production rose to 9,500 tons. Approximately 4,000 tons of woodpulp would be required here. This compound was first introduced in 1944, thus eight years have been required for it to reach any consequence as a consumer of purified woodpulp.

Other uses for purified woodpulp would be for nitrocellulose for lacquer, photographic film, vulcanized fiber, sanitary napkins, methyl cellulose that is not reported as plastic, smokeless powder, photographic paper, saturating papers, and other papers which consume the rayon reject pulp. Table VIII sums up these uses in a balance. As noted throughout this review some of the figures are bona fide, while others are the author's or the trade's best estimates.

This review is, of course, written for today. Current conditions and trends have been a great influence in its writing. From a narrow point of view, the review does not concern itself much beyond 1955. From a broader point of view,

TABLE VIII  
**Cellulose Uses—1952**  
(Thousands of short tons)

Net available for N.A.	951
Consumed in Canada	40
Transit shipments	15
Increase in producers' inventory	46
Increase in consumers' inventory	60
Net for U.S. consumption	790
Rayon acetate	485
Cellophane	160
Balance for other uses	145
Plastics	13
CMC	4
Misc. viscose	5
Vul. fiber, Smokeless powd., misc.	30
Photographic film	18
All papers and absorbents	75

some statements have been made going as far ahead as ten years. Cellulose is an intriguing and interesting raw material. Its use has risen very rapidly in the past twenty-five years, and while the present may be a breathing spell, it should not be considered for a moment that the race is over. The future, undoubtedly, will bring higher and higher figures on the consumption of purified woodpulp, but that future lies more than several years away.

## U. S. RAYON AND ACETATE PRODUCERS

### 15 Companies—All Plants in East and Southeast

Here is an up-to-date list of rayon and acetate producers of the U. S., briefed from a compilation in *Textile Organon* with their executive offices and plants. Two of these companies now have their own woodpulp mills, built or under way.

Celanese Corp. of America was first to build its own woodpulp mill, Columbia Cellulose at Prince Rupert, B.C., and is planning a second at Castlegar, B.C. American Viscose is partner with Puget Sound Pulp & Timber Co. in Ketchikan Pulp Co., now under construction in Alaska.

All the U. S. acetate and rayon plants are concentrated in 15 eastern and southeastern states. Main offices of 6 companies are in New York, two in Cleveland, and the other six in eastern towns.

American Bemberg, Division of Beaunit Mills, 261 Fifth Ave., New York (16), N.Y.

Plants at Elizabethton, Tenn., built in 1926 and 1950.

American Enka Corp., 206 Madison Ave., New York 16, N.Y.

Plants at Enka, N.C., built in 1929, and Lowland, Tenn., 1948. Formed as subsidiary of Netherlands Enka.

American Viscose Corp., 1617 Penn Blvd., Phila. 3, Pa.

First rayon plant in America at Marcus Hook, Pa., 1911, under Courtauld patents. Others: Roanoke, Va., 1917; Lewistown, 1921; Parkersburg, W. Va., 1927 and 1935; Meadville, Pa., 1930; Nitro, W. Va., 1937 (began as cotton linter pulp plant, 1918); Fort Royal, Va., 1940 and 1941.

Beaunit Mills, Coosa Pines Div., 261 Fifth Av., New York 16, N.Y.

Childersburg, Ala., 1949.

Celanese Corp. of America, 180 Madison Av., New York 16, N.Y.

Cumberland, Md., 1925; Rome, Ga., 2 plants, 1929; Narrows, Va., 1939 and 1940; Rock Hill, S.C., 1948 and 1951. Predecessor company was American Cellulose & Chemical Mfg. Co., formed in 1918, based on patents of Camille and Henry Dreyfus. Merged with Tubize Rayon (Rome, Ga., and Hopewell, Va., plants) in 1946, and with Lustron Corp. (Boston, Mass., plant) in 1927.

Courtaulds (Alabama) Inc., 600 Fifth Ave., New York 20, N.Y.

Le Moyne, Ala.

Delaware Rayon Co., New Castle, Del.  
New Castle, Del., 1927.

E. I. du Pont de Nemours & Co., Wilmington 98, Del.

Buffalo, N. Y., 1921 and 1928; Old Hickory, Tenn., 1925; Richmond, Va., 1929; Waynesboro, Va., 1930. Started as Du Pont Fibersilk Co., 1921, under agreement with a French company.

Eastern Rayon Mills Inc., 1294 W. 70th, Cleveland 2, Ohio.

Cleveland, O., 1923 and 1950. Started in 1909 as Cleveland Art Silk Co.

Fair Haven Mfg. Co., Fair Haven, Vt.

Fair Haven, Vt., 1941.

Hartford Rayon Corp., Rocky Hill, Conn.  
Rocky Hill, Conn., 1925 and 1951. Con-

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trolling stock bought by Bigelow Sanford Carpet Co. in 1951.

*Industrial Rayon Corp., Union Commerce Bldg., Cleveland 1, O.*

Cleveland, O., 1916; Covington, Va., 1929; and Painesville, O., 1938. This was first company to go 100% to use of wood-pulp and no cotton linters.

*New Bedford Rayon Co., P. O. Box 908, New Bedford, Mass.*

New Bedford, Mass., 1929 and 1942.

*North American Rayon Corp., 261 Fifth Ave., New York 16, N.Y.*

Elizabethton, Tenn., 1928. Formed in 1927 as American Glanzstoff Corp., under agreement with Glanzstoff of Germany. Control bought by Beaunit Mills, 1948.

*Skenandoa Rayon Corp., 261 Fifth Ave., New York 16, N.Y.*

Utica, N.Y., 1926. Formed under French company agreement. Control bought from St. Regis Paper Co. by Beaunit Mills in 1945.

*Tennessee Eastman Co., Div. of Eastman Kodak, Kingsport, Tenn.*

Kingsport, Tenn., 1931 and 1935.

#### **World Production of Rayon—Acetate and Per Cent U.S. Thereof**

World Production Tons	U.S. % of World
1940 1,235,500	19.1
1945 701,500	56.5
1946 843,500	50.6
1947 994,000	49.0
1948 1,225,500	45.9
1949 1,352,000	36.7
1950 1,750,000	36.0
1951 1,980,000	32.7
1952 1,700,000	33.4

Source—Textile Organon

#### **CANADA**

Review continued from page 68

duction from its new groundwood mill at Masson. Anglo-Canadian Pulp & Paper Mills upped its newsprint capacity by another 5,000 tons. Donohue Bros. boosted its production to 70,000 tons a year. Donnacona Paper Co. is in the midst of a program including newsprint speedup.

Planned expenditure by the E. B. Eddy Co. at its Hull mills this year total \$2,500,000.

Since installation of the two 262 inch Fourdrinier paper machines (Dominion Engineering) for Quebec North Shore Paper Co. at Baie Comeau there has been a gradual increase in operating speed.

One development of the year in Ontario was completion of a chlorine-caustic soda plant at Marathon, by Marathon Paper Mills of Canada, designed by Monsanto. Brompton Pulp & Paper Co. made progress on its \$22,000,000 program to provide 60,000 ton newsprint capacity and step up output of sulfate board, kraft board and groundwood. Two kraft digesters were supplied by John Inglis, Sprout, Waldron put in four hot stock refiners, and Swenson Evaporator (Whiting Corp., Canada) installed two brown stock washers, four Waterous super-grinders and a 240 inch wire width 600 ton board machine by John Inglis with Valley Iron Works head box were installed. Two 125,000 ppm. steam units were supplied by Babcock & Wilcox.

Ontario-Minnesota's No. 5 machine at Fort Frances was modernized. Dominion Engineering Co. installed a removable Fourdrinier and other units. A new Cameron winder was added.

At Thorold, Ontario Paper Co. estab-

lished a plant to produce 400,000 pounds of vanillin a year. Dryden Paper Co.'s chief concern has been stepping up its sulfate pulp capacity to 80,000 tons at a cost of about \$3,500,000.

Howard Smith Paper Mills has completed its modernization of the Cornwall mill. Another Fourdrinier has been installed at the company's Merriton mill for glassine.

The KVP Co. at Espanola is now turning out parchment paper on a Pusey & Jones machine driven by Louis Allis variable speed AC motor in a newly completed building, with a Swenson acid evaporator.

Reports of a new pulp mill for the Blind River country near Espanola were revived during the year, but nothing tangible has resulted.

Most improvements planned by Bathurst Power & Paper Co. have now been completed, giving it annual capacity of about 175,000 tons.

Bowater's Newfoundland Pulp & Paper Mills is now carrying out a major program of development through installation of a new digester, construction of a new screen room for sulfite and reorganization of the groundwood stock and storage system. A new high-pressure boiler plant is being built, coupled with a new steam turbine. At present 1,000 tons of newsprint per day is not uncommon at this mill, and this figure will be substantially increased during 1953.

Newfoundland & Labrador Corp., representing the province's government, has been promoting the idea of a pulp or paper mill near Goose Bay, Labrador.

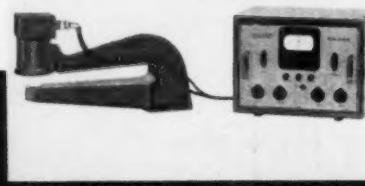
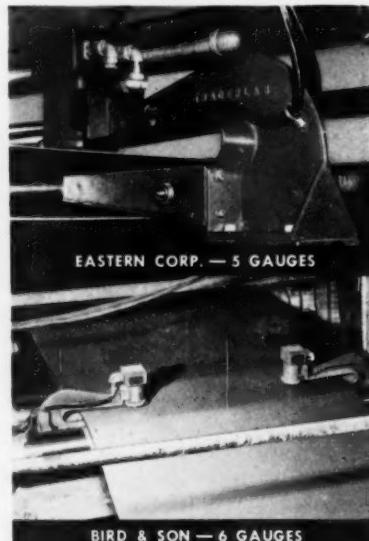


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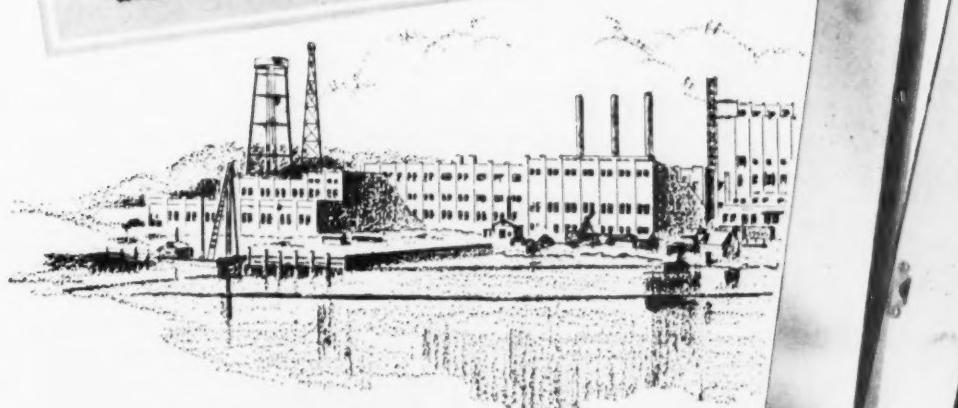
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#### STATE UNIVERSITY OF NEW YORK, College of Forestry.

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#### WOODLANDS SECTION, CPPA

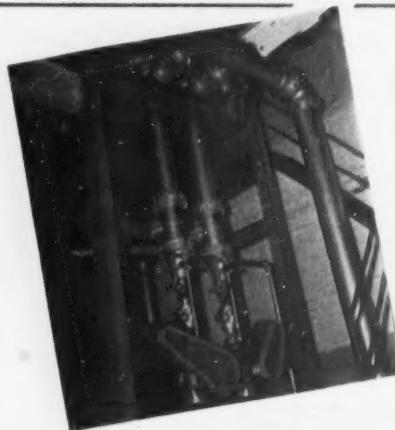
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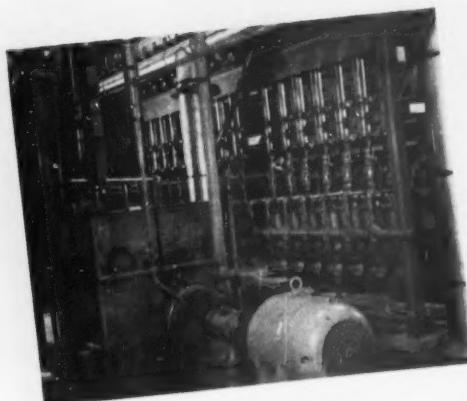
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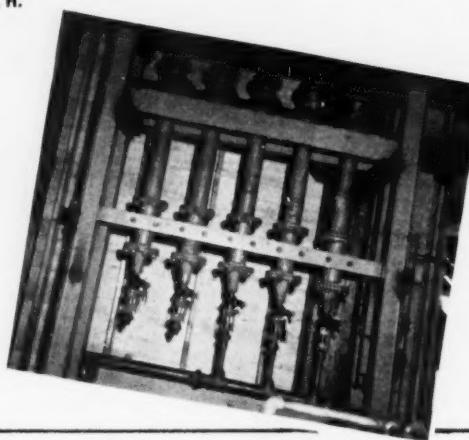
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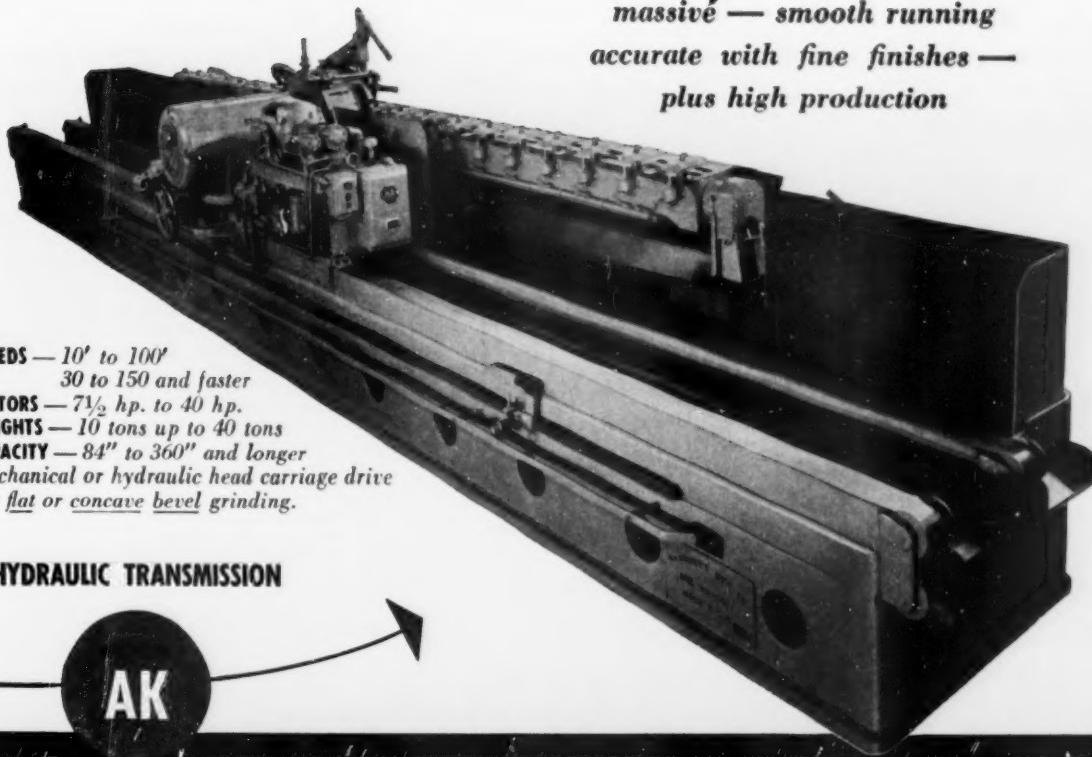


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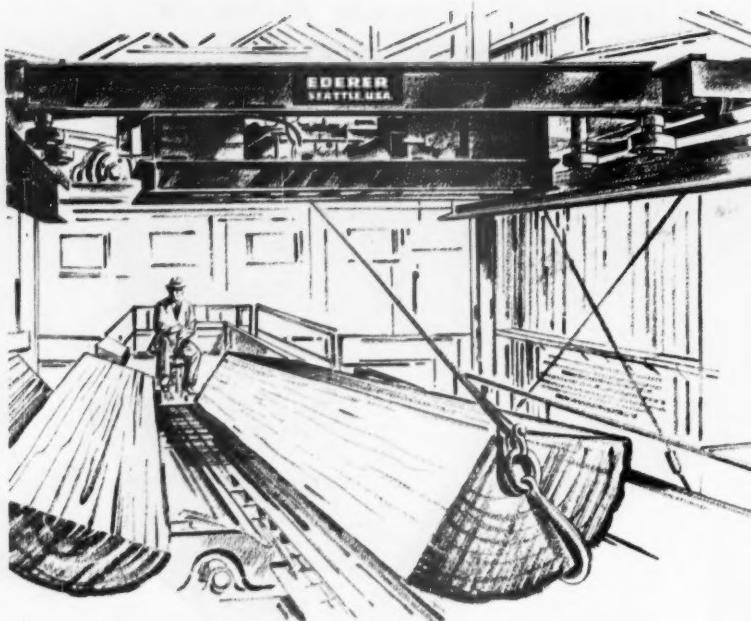
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## PULP & PAPER's 1953 STATISTICAL TABLES



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# STATISTICAL TABLES . . . 1953

## UNITED STATES PULP AND PAPER INDUSTRY

### COMPANIES ARE FEWER; PULP MILLS INCREASING

SOME INTERESTING SIDELIGHTS on developments in the United States pulp and paper industry, which has not so far attracted much industry attention, is apparent in study of various records made by PULP & PAPER. They reveal:

1. The number of companies reached a peak in 1948-50 and now seem to be slightly dwindling as a result of mergers, stock exchanges, etc.

2. The number of paper mills appear to remain fairly steady.

3. But the number of woodpulp mills are increasing. Over 50, large or small, have been added in the past five years. Several more are coming into production this year and next year.

What it seems to indicate is that many mills, unless highly specialized, must have assured wood resource for survival, and also it indicates the result of the growing uses of hardwoods in all regions of the country—for high quality dissolving or paper pulps as well as semi-chemical.

### U. S. PULP & PAPER INDUSTRY

	—Mills—		
	Co's	Paper	Pulp
1946.....	517	735	242
1947.....	560	758	241
1948.....	570	768	245
1949.....	565	764	255
1950.....	572	767	259
1951.....	530	769	278
1952.....	490	768	305

Year	Wage Earners	Wages Paid	Industry Worth
1849	6,785	\$1,497,792	\$7,260,864
1869	18,021	7,208,691	34,556,014
1889	31,050	13,204,828	89,829,548
1899	49,646	20,746,426	167,507,713
1909	75,978	40,804,502	409,348,505
1919	113,759	135,690,642	905,794,583
1929	128,049	173,077,781	1,250,000,000
1939	137,445	175,687,842	1,700,000,000
1943	150,000	299,000,000	1,990,000,000
1946	167,000	386,000,000	2,420,000,000
1949	198,000	614,000,000	3,590,000,000
1950	205,000	694,000,000	4,080,000,000
1951	212,000	780,000,000	4,400,000,000

Source: American Paper and Pulp Association.

### UNITED STATES PULP AND PAPER INDUSTRY STATISTICS

	In Billion of Dollars	In Millions	No. Employees	Tons	Wages	Unit					
				Assets	Net Worth	Sales	Taxes	Thousands	Per Employee	Per Ton	Per Man Hr.
1939....	\$2.36	\$1.70	\$1.45	\$49	\$176	138	98	\$13.0	100.0		
1942....	2.68	1.92	2.46	265	284	164	104	16.6	101.9		
1945....	2.97	2.13	2.88	214	352	159	109	20.2	99.1		
1948....	4.68	3.34	5.38	346	612	205	107	27.7	111.1		
1949....	4.89	3.59	4.79	264	614	198	103	30.2	115.7		
1950....	5.59	4.08	5.89	529	694	205	119	28.6	125.0		
1951....	6.50	4.40	7.22	982	780	212	123	29.9	128.6		

Last year for which data is available.

Source: American Paper and Pulp Assn.

### U. S. PAPER PRODUCTION, IMPORTS, EXPORTS, AND CONSUMPTION

(All Grades—in tons of 2,000 lbs.)

Year	Production	Imports**	Exports**	Consumption	
				Tons	Lbs/Capita
1899....	2,167,593	.....	.....	2,167,593	57.9
1909....	4,121,495	55,962	74,764	4,102,693	90.5
1919....	5,966,076	707,548	420,540	6,253,084	119.1
1929....	11,140,235	2,533,603	262,383	13,411,455	220.3
1939....	13,509,642	2,687,484	248,569	15,948,557	243.7
1942....	17,083,862	3,038,499	341,920	19,780,441	293.8
1945....	17,370,965	2,753,211	458,689	19,665,487	281.7
1948....	21,897,301	4,581,811	397,019	26,082,093	355.9
1949....	20,315,436	4,751,323	372,277	24,694,482	331.0
1950....	24,377,222	5,007,384	371,546	29,013,060	382.5
1951....	26,086,115	5,158,010	634,303	30,609,822	396.6
1952....	24,413,212	5,191,126	591,338	29,013,000	372.5

\*\* Quantities estimated, wholly or in part, from values given. Imports and exports for various grades include 'Paper Products.'

Source: American Paper & Pulp Assn.

### U. S. INDUSTRY GROWTH

(in Millions of Units)

Year	Production (In Thousands)	Woodpulp			Waste Paper Consumption	Woodpulp Production	Woodpulp Consumption	Newspaper Imports	Newspaper Exports
		Con- sumption	Woodpulp Production	Woodpulp Consumption					
1939	10.8	7.0	8.7	4.4	tons	10.8	7.0	8.7	4.4
1950	23.7	14.8	16.5	7.9	tons	23.7	14.8	16.5	7.9
1951	26.5	16.5	17.7	9.1	tons	26.5	16.5	17.7	9.1
1952	26.4	16.5	17.3	7.9	tons	26.4	16.5	17.3	7.9

Year	Paper & board Production (In Thousands)	Woodpulp		Newspaper Imports		Woodpulp Production	Woodpulp Consumption	Newspaper Exports
		Production	Imports	Imports	Exports			
1939	13.5	2.0	2.6	2.0	2.6	13.5	2.0	2.6
1950	24.3	2.4	4.9	2.4	4.9	24.3	2.4	4.9
1951	26.0	2.4	5.0	2.4	5.0	26.0	2.4	5.0
1952	24.4	1.9	5.0	1.9	5.0	24.4	1.9	5.0

### UNITED STATES—WEEKLY EARNINGS

#### PULP, PAPER, PAPERBOARD AND CONVERTED PRODUCTS

Year	No. of Workers (In Thousands)	(For Production Workers Only)		
		Ave. Weekly Earnings	Ave. Hours	Ave. Hourly Earnings
1947	406	\$50.21	43.1	\$1.16
1948	407	\$55.25	42.8	\$1.29
1949	389	\$55.96	41.0	\$1.34
1950	415	\$61.14	43.3	\$1.41
1951	434	\$65.51	(not available)	
1952	422	\$68.91	(not available)	

Source: U. S. Bureau of Labor Statistics

### TOTAL PAPER PRODUCTION IN UNITED STATES BY GRADES

(Tons of 2,000 lbs.)

Year	Newsprint	Book	Groundwood	Fine	Wrapping (Coarse)	Tissue	Sanitary	Absorbent	Building Paper	Other Paper	Total Paper	All Paper	Total Paper and Board
1899	569,121	304,459	*	131,456	535,252	28,406	*	*	*	*	204,697	1,773,482	2,167,593
1924	1,481,425	1,050,000	*	422,000	1,235,000	242,000	*	*	*	*	*649,560	5,079,985	7,929,985
1940	1,056,304	1,655,423	550,453	735,753	2,500,818	733,894	*	129,410	682,460	60,120	8,104,635	14,483,709	
1945	725,475	1,501,015	636,026	1,000,794	2,403,182	157,083	823,705	88,643	883,259	238,047	8,457,229	17,370,955	
1948	875,760	3,153,999	1,140,859	3,026,699	205,095	982,692	107,305	1,321,431	307,690	11,118,530	21,897,301		
1949	917,778	2,978,222	1,014,954	2,757,731	186,667	1,008,162	86,113	1,151,374	247,893	10,348,894	20,315,436		
1950	1,013,346	3,302,861	1,198,574	3,285,635	225,199	1,148,351	126,690	1,424,633	340,903	12,066,192	24,377,222		
1951	1,106,086	3,525,537	1,364,029	3,597,144	270,138	1,215,258	124,412	1,400,658	419,036	13,022,298	26,056,115		
1952	1,106,351	3,387,551	1,295,179	3,235,021	209,000	1,148,000	118,000	1,298,300	396,698	12,194,100	24,413,212		

\* In 1899 and 1924 groundwood, absorbent, sanitary and building papers are included in "Other Paper." Beginning in 1948, groundwood included with book.

Source: American Paper and Pulp Assn.

**VALUE OF SALES IN U. S. INDUSTRY  
AND BY WHOLESALERS**

Year	By Pulp, Paper, Board and Products Industries Millions of dollars	By Wholesale Distributors of Paper and Its Products Millions of dollars
1939.....	\$1,785	\$575
1941.....	\$2,836	\$739
1943.....	\$3,389	\$833
1945.....	\$3,725	\$909
1947.....	\$5,764	\$1,828
1948.....	\$6,066	\$1,902
1949.....	\$5,448	\$1,723
1950.....	\$6,671	\$2,013
1951.....	\$8,432	\$2,400
1952*.....	\$8,023	\$2,195

\* Estimate. Source: U. S. Dept. of Commerce.

**PRODUCTION WORKERS AND WAGES  
IN U. S. PULP, PAPER AND ALLIED  
PRODUCTS INDUSTRIES**

Year	Average number of wage earners (Thousands)	Total dollar wages (Millions)
1899.....	94	36
1909.....	145	68
1919.....	203	208
1929.....	229	281
1939.....	265	310
1949.....	389	1,112
1951.....	434	1,436

(latest available in this form—for later data see below)

Source: U. S. Bureau of Labor Statistics. Source of data prior to 1939: Bureau of Census.

**AVERAGE HOURLY EARNINGS U. S.  
PULP AND PAPER INDUSTRY VS.  
U. S. FACTORY AVERAGE**

	Pulp and paper Hourly earnings	U. S. Factory Hourly earnings
June 1939....	\$ .618	\$ .631
June 1941....	.716	.732
June 1943....	.851	.959
June 1945....	.906	1.038
June 1947....	1.232	1.244
Dec. 1947....	1.289	1.245
June 1948....	1.368	1.340
June 1949....	1.410	1.405
June 1950....	1.466	1.453
Dec. 1950....	1.573	1.543
June 1951....	1.599	1.599
Dec. 1951....	1.634	1.636
June 1952....	1.680	1.650
Dec. 1952....	1.740	1.730

Source: U. S. Bureau of Labor Statistics

**U. S. NEWSPRINT SUPPLY AND SOURCES**

	In thousands of short tons				Percentages		
	from Canada	from U.S.A.	from Europe	TOTAL	from Canada	from U.S.A.	from Europe
1915.....	367	1,184	1	1,552	24%	76	0
1925.....	1,315	1,507	133	2,955	45%	51	4
1930.....	2,145	1,272	134	3,551	60%	36	4
1935.....	2,122	911	197	3,230	66%	28	6
1940.....	2,741	998	34	3,773	73%	26	1
1945.....	2,666	707	nil	3,373	79%	21	0
1946.....	3,563	754	13	4,330	82%	18	0
1949.....	4,380	884	255	5,519	79%	16	5
1950.....	4,748	1,002	170	5,920	80%	17	3
1951.....	4,784	1,108	206	6,098	79%	18	3
1952.....	4,855	1,065	190	6,110	79%	18	3
1953*.....	4,700-4,900	1,115	185	6,000-6,200	..	..	..

\* Estimated. Prewar is the average of the five years 1935-39. Sources: Supply from Canada is the amount of shipments reported by Canadian mills to NAC, from U.S. is the amount of shipments from U.S. mills reported to NSB less exports and from Europe is taken from reports of the U.S. Department of Commerce.

**BASIC U. S. PRODUCTION AND CONSUMPTION DATA**

**WOODPULP**

	PAPER			Consumption All Purposes PULPWOOD (paper, rayon, _____)		
	Production (tons)	Consumption (tons)	Production (tons)	For Paper film, plastics, Only (tons) etc.—tons	Consumption (cords)	
1899.....	2,167,593	2,158,000	1,179,525	1,216,254	.....	1,986,310
1909.....	4,216,708	4,224,000	2,495,523	2,856,593	.....	4,001,607
1919.....	6,190,361	6,479,490	3,517,952	4,113,911	.....	5,477,832
1929.....	11,140,235	13,347,925	4,862,885	6,704,341	.....	7,645,011
1934.....	9,186,266	11,185,682	4,436,128	5,969,633	.....	6,796,659
1938.....	11,327,000	13,488,300	5,933,560	7,975,000	.....	9,193,991
1942.....	17,083,862	19,608,862	10,783,430	11,038,020	.....	17,204,000
1946.....	19,277,667	22,509,788	10,605,225	12,092,093	12,605,093	17,817,560
1948.....	21,897,301	26,082,093	12,872,292	14,374,586	15,034,586	21,189,458
1949.....	20,315,436	24,694,482	12,171,786	13,606,387	14,181,387	19,949,440
1950.....	24,377,222	29,013,060	14,810,860	16,483,201	17,183,201	23,627,000
1951.....	26,086,115	30,609,822	16,494,000	17,704,000	18,480,000	26,576,000
1952.....	24,413,212	29,013,000	16,467,000	17,274,000	18,026,000	26,462,000

Source: American Paper and Pulp Assn.

**NEWSPRINT PAPER CONSUMPTION**

—U. S.

Population	Paper Used		
	Newspaper Tons	Per Capita Lbs.	
1924..	113,090,000	2,737,000	48.4
1930..	123,091,000	3,563,000	57.9
1935..	127,521,000	3,300,000	51.7
1940..	132,817,000	3,730,000	56.2
1944..	138,101,000	3,250,000	47.1
1945..	139,621,000	3,480,000	49.8
1946..	141,229,000	4,296,000	60.8
1947..	143,382,000	4,753,000	66.3
1948..	146,116,000	5,141,000	70.4
1949..	149,215,000	5,529,000	74.1
1950..	151,376,000	5,937,000	78.4
1951..	153,396,000	5,975,000	77.9
1952..	155,300,000	5,988,000	77.2

Source: Newsprint Service Bureau.

**NEWSPRINT EXPORTS FROM CANADA**

	(SHORT TONS)		
	U.S.A.	Overseas	Total
1935.....	2,052,000	523,000	2,575,000
1940.....	2,586,000	657,000	3,243,000
1945.....	2,534,000	525,000	3,059,000
1948.....	3,917,366	410,718	4,328,084
1949.....	4,354,000	440,000	4,798,000
1950.....	4,724,000	214,000	4,938,000
1951.....	4,790,000	375,000	5,165,000
1952.....	4,855,000	465,000	5,320,000
1953 (est.)	4,800,000	520,000	5,320,000

Including Newfoundland since April, 1949.

**U. S.—NEWSPRINT**

(In Thousands of Tons)

	Consumed Lbs. per Capita		
	Produced	Imp'ts	Exp'ts
1899..	28	...	28
1914..	115	...	115
1924..	242	6	244
1934..	397	8	398
1941..	912	.07	25
1947..	1,088	1	18
1949..	1,195	1.4	21
1950..	1,374	.5	18
1951..	1,485	.2	21
1952..	1,357	.2	17

Source: Am. P. & P. Assn.

**U. S. FINE PAPERS**

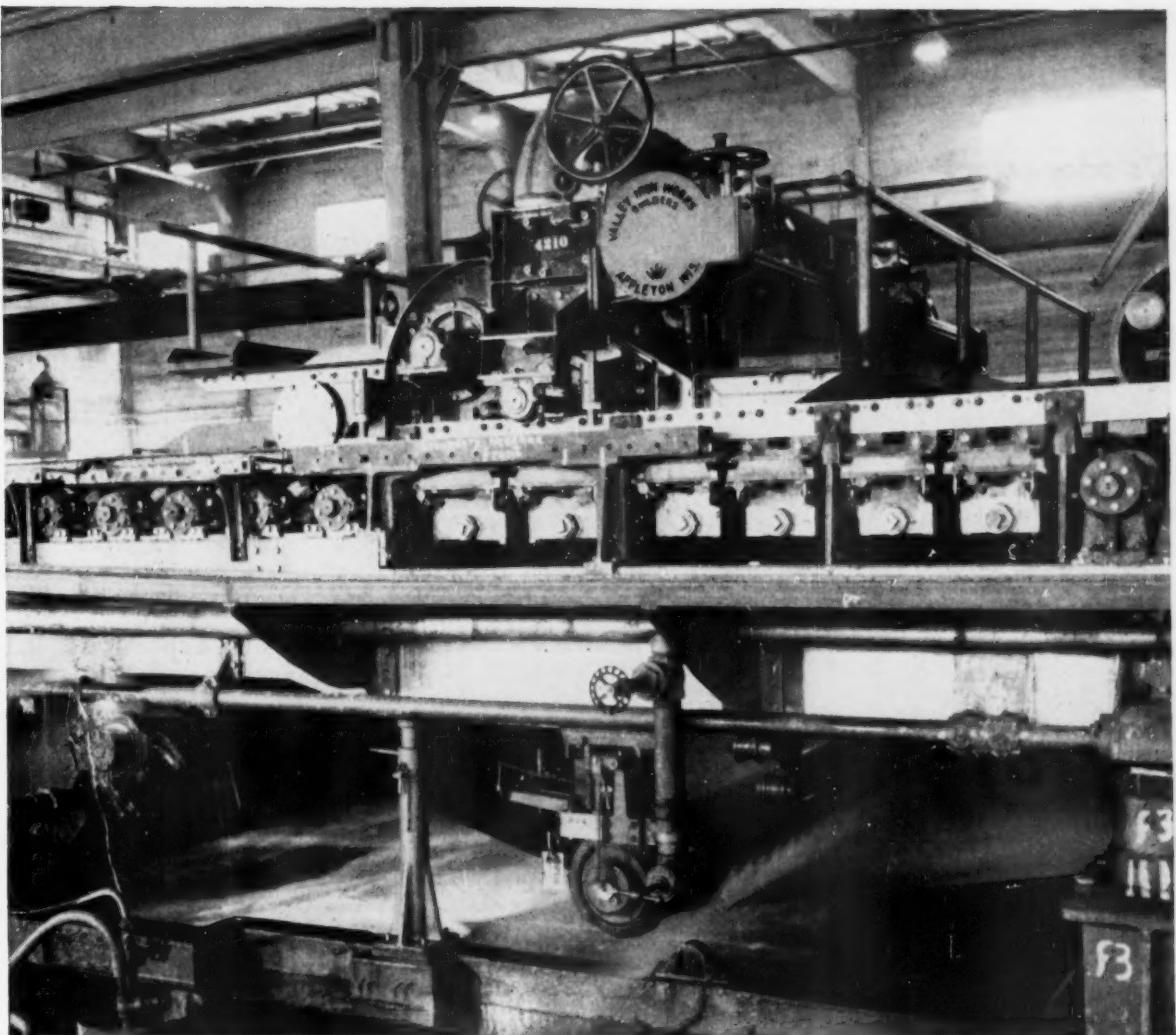
(In Thousands of Tons)

	Consumed Lbs. per Capita		
	Produced	Imp'ts	Exp'ts
1899..	131	...	131
1914..	269	...	266
1924..	422	1.3	419
1934..	434	.8	425
1941..	950	2	46
1947..	1,171	.6	68
1949..	1,015	.6	48
1950..	1,199	1	41
1951..	1,364	2	54
1952..	1,295	1	47

From 1899 to 1940 inclusive, only writing and cover were in fine papers. Beginning 1941, text papers (from book), bristol (from paperboard), and "thin papers" (from tissue) have been added. Source: American P. & P. Assn.

# PRESSURE SECONDARY\*

## ON LONGVIEW NO. 6 MACHINE



A new development causing widespread favorable comment — the Valley Pressure Secondary Headbox for high speed and low speed Fourdrinier Board. Your inquiries are invited.

\*Patents Applied For.

**VALLEY**  
Iron Works Company  
APPLETON, WISCONSIN

### U. S. COARSE PAPERS

(In Thousands of Tons)

	Produced	Imp'ts	Exp'ts	Tons	Consumed Lbs. per Capita
1899..	535	...	...	535	14
1914..	911	18	7	922	18.8
1924..	1,235	25	18	1,242	22
1934..	1,356	5	32	1,329	21
1943..	2,262	1	49	2,213	32
1947..	2,903	22	51	2,874	40
1949..	2,758	6	56	2,708	36
1950..	3,286	11	73	3,324	43
1951..	3,597	11	130	3,478	45
1952..	3,235	10	121	3,124	40

Source: American P. & P. Assn.

### U. S. BOOK PAPER

(In Thousands of Tons)

	Produced	Imp'ts	Exp'ts	Tons	Consumed Lbs. per Capita
1899..	304	...	...	304	8
1914..	795	6	14	788	16
1924..	1,050	14	10	1,053	18
1934..	1,055	4	12	1,047	16
1941..	2,025	28	51	2,002	30
Beginning 1941, text papers allocated to fine papers					
1947..	2,207	74	76	2,206	31
Beginning 1948 Groundwood Papers included with Book Paper. Groundwood was in All Other Paper.					
1949..	2,972	28	41	2,965	40
1950..	3,303	38	27	3,314	44
1951..	3,526	51	52	3,524	46
1952..	3,387	48	66	3,369	43

Source: American P. & P. Assn.

### U. S.—ALL PAPER OTHER THAN PAPERBOARDS

(In Thousands of Tons)

	Produced	Imp'ts	Exp'ts	Tons	Consumed Lbs. per Capita
1899..	1,773	...	...	1,773	47
1914..	3,860	349	106	4,103	84
1924..	5,079	1,445	100	6,424	113
1934..	5,173	2,252	114	7,311	116
1941..	9,362	3,086	317	12,131	182
1947..	10,705	4,060	297	14,468	201
1949..	10,349	4,681	226	14,804	198
1950..	12,066	4,922	225	16,763	221
1951..	13,022	5,043	358	17,707	229
1952..	12,194	5,106	385	16,911	217.1

Source: American Paper & Pulp Assn.

### U. S.—ALL OTHER PAPER

(In Thousands of Tons)

	Produced	Imp'ts	Exp'ts	Tons	Consumed Lbs. per Capita
1899..	204	...	...	204	6
1914..	455	46	37	464	9
1924..	649	39	45	643	11
1934..	880	15	26	868	14
1943..	1,759	4	26	1,736	25
1947..	2,500	5	55	2,450	34
1949..	1,485	5	21	1,469	19.7
1950..	1,892	7	24	1,876	24.7
1951..	1,944	11	30	1,925	24.8
1952..	514	11	24	501	6.4

Source: American P. & P. Assn.—Up to 1948,  
included groundwood. Since then, groundwood  
included in book.

### U. S. PAPERBOARD STATISTICS

(In Tons of 2,000 lbs.)

Year—	Production	Imports	Exports	Consumption	Per Capita Consumption Lbs.
1899.....	394,111	...	...	394,111	10.5
1909.....	883,088	...	...	883,088	19.5
1919.....	1,867,064	44,461	61,890	1,849,635	35.2
1929.....	4,451,187	42,351	94,374	4,399,164	72.4
1939.....	6,025,494	28,728	113,571	5,940,651	90.8
1945.....	8,913,736	51,189	155,020	8,809,905	126.2
1948.....	10,775,454	75,072	170,837	10,679,689	145.7
1949.....	9,966,542	70,309	146,926	9,890,825	132.6
1950.....	12,311,030	85,850	146,168	12,250,712	161.5
1951.....	13,063,817	114,384	276,117	12,902,292	167.2
1952.....	12,219,112	83,759	172,535	12,101,532	155.4

Source: American Paper and Pulp Assn.

### UNITED STATES PAPERBOARD PRODUCTION

(In Tons of 2,000 lbs.)

	Container Board	Folding Boxboard	Setup Boxboard	Building Boards	Other Boards	Total Paperboard
1940.....	3,434,834	1,416,452	898,549	179,443	449,796	6,379,074
1945.....	4,131,107	2,092,344	721,087	894,830	1,074,368	8,913,736
1948.....	5,078,929	2,199,608	596,190	1,270,348	1,629,605	10,775,454
1949.....	4,681,054	2,084,415	617,249	838,729	1,734,757	9,966,542
1950.....	5,646,433	2,368,010	641,345	1,258,620	2,292,071	12,311,030
1951.....	6,346,966	2,428,794	700,762	1,314,850	2,272,445	13,063,817
1952.....	5,770,000	2,193,000	687,000	1,305,000	2,262,000	12,220,000

Source: American Paper and Pulp Assn.

### Exclusive Report on Laminates and Molds

By Arthur J. Norton  
Consulting Chemists, Seattle

As the table on "U. S. Laminates and Molds Production" shows, wood-filled molding compounds and laminates using paper were down from last year.

Wood-filled molding compounds slacked off also.

Cellulose plastics production in 1952: Cellulose acetate, 41,000 tons; cellulose nitrate, 2,900 tons and ethyl cellulose and others, 3,250 tons.

### U. S. LAMINATES AND MOLDS PRODUCTION—PULP AND PAPER PLASTICS

(In Thousands of short tons)

Estimates made especially for PULP & PAPER by Arthur J. Norton, consulting chemist who has been closely identified with these developments in New England and the Middle West and now makes his headquarters in Seattle.

Wood	Paper Laminates (paper plus paper resins)	Paper in Molding Laminates	Flour Filled Laminates	Pulp Moldings
1940..	10	7	2	-1
1943..	40	20	2	1
1944..	40	20	3	2
1945..	40	20	17	2
1946..	30	15	35	3
1947..	30	15	80	3
1948..	35	17	50	3
1949..	35	17	60	3.5
1950..	85	51	108	5
1951..	92	55	94	5
1952..	89	53	80	4

\*Container boards, box boards, cardboard and other.

\*\*Shoe board, binder board and other.

## Results are spectacular with

*Bauer* **CENTRI-CLEANERS**

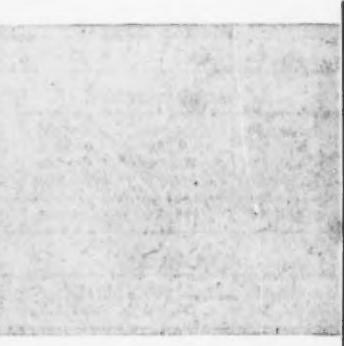
Everyone who sees examples of the work done by Centri-Cleaners is astonished at the results. The examples are sheets made from the stock which goes into the Centri-Cleaners, sheets made from the accepted stock, and sheets made from the final rejects. Some photographic reproductions are shown below, but they are not as sensational as the sheets themselves.

Our representatives have assortments of sheets from a number of kinds of stock processed with the No. 600 and No. 622 Centri-Cleaners. If you wish to see the examples, let us know and our representative in your area will show them to you on his next call.

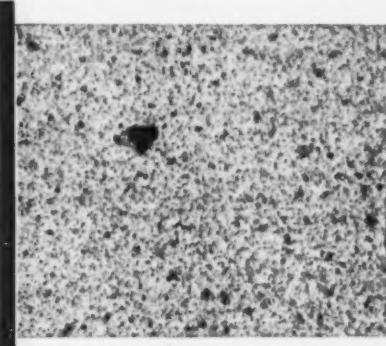
In the meantime, we suggest that you ask for our Bulletin No. P-4 which explains the construction and operation of Centri-Cleaners.



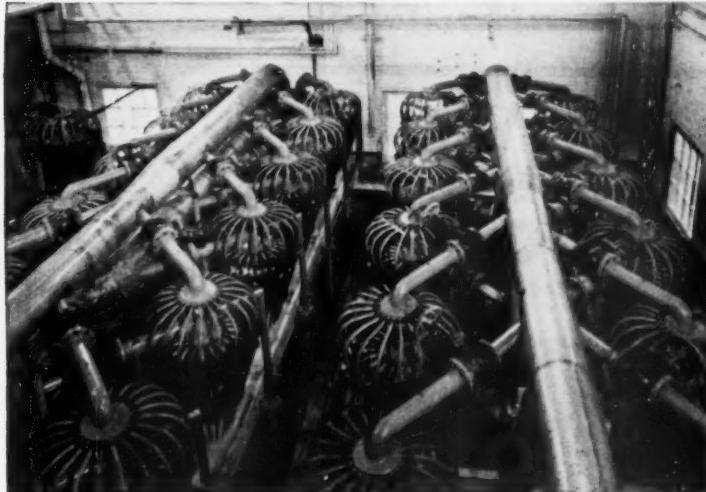
Sheet made from sulphite screen rejects. This is what went through the Centri-Cleaners.



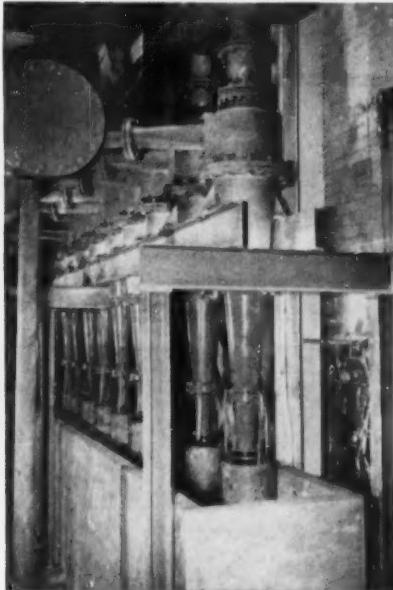
Sheet made of accepted stock from the primary group of Centri-Cleaners.



Sheet made of Centri-Cleaner final rejects. This sheet consists of sand, bark, shives, and other refuse.



Overhead view of No. 600-3" Centri-Cleaners manifolds into inlet and outlet headers. These Centri-Cleaners are cleaning unbleached sulphite pulp.



Installation of ten primary and one secondary No. 622-12"x4" Centri-Cleaner ahead of a paper machine. Each group is manifolds into inlet and outlet headers.

Our representative will be glad to show you actual examples of work done by Centri-Cleaners.

*Ask for Bulletin No. P-4*

**THE BAUER BROS. CO. • 1706 Sheridan Ave. • Springfield, Ohio**

## U. S. PAPERBOARD MILLS

GRADES	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952
--------	------	------	------	------	------	------	------	------	------	------

### CONTAINERBOARDS

LINERS Jute	1,051,100	1,127,500	1,145,300	1,219,100	1,308,800	1,122,700	770,700	921,800	1,087,300	770,500
Cylinder Kraft Fourdrinier Kraft	189,100 1,252,900	130,300 1,340,400	137,500 1,308,000	190,800 1,311,900	232,400 1,596,400	219,700 1,909,200	195,900 2,038,000	209,600 2,587,100	203,900 2,759,300	183,100 2,741,400
Total Kraft	1,442,000	1,470,700	1,445,500	1,502,700	1,828,800	2,128,900	2,233,900	2,796,700	2,963,200	2,924,500
TOTAL LINERS	2,493,100	2,598,200	2,590,800	2,721,800	3,137,600	3,251,600	3,004,600	3,718,500	4,050,500	3,695,000
CORRUGATING MATERIALS Semichemical *	247,500	331,100	300,800	398,600	505,800	486,400	535,600	720,600	841,100	846,100
Kraft	157,600	120,400	154,600	174,300	138,400	134,300	225,600	227,900	206,400	213,100
Strawboard *	387,500	389,000	376,800	385,400	407,400	402,000	312,600	350,900	343,400	279,100
Other *	237,100	249,400	279,300	304,800	368,700	364,600	276,000	373,600	426,200	287,900
TOTAL CORRUGATING MATERIALS	1,029,700	1,089,900	1,111,500	1,263,100	1,420,300	1,387,300	1,349,800	1,673,000	1,817,100	1,626,200
CHIP & FILLER BOARDS Liner Chip	83,800	96,800	83,000	114,200	81,600	87,300	70,600	75,700	79,500	73,500
Filler Board	332,700	338,200	314,500	214,600	248,900	234,100	199,200	237,800	276,800	254,300
TOTAL CHIP & FILLER BOARDS	416,500	435,000	397,500	328,800	330,500	321,400	269,800	313,500	356,300	327,800
TOTAL CONTAINERBOARDS #	3,939,300	4,123,100	4,099,800	4,313,700	4,888,400	4,960,300	4,624,200	5,705,000	6,223,900	5,649,000

### BOXBOARDS

Folding Boxboard **	1,612,700	1,660,700	1,722,200	2,109,000	2,096,500	2,066,400	2,010,600	2,351,300	2,336,100	2,177,300
Set-up Boxboard	599,000	543,100	511,600	474,100	601,500	639,500	662,500	730,800	682,500	658,900
Special Food Board **	385,300	386,500	400,000	445,600	460,800	443,400	515,600	691,200	810,300	870,600
All Other Paperboard **	1,125,900	1,248,500	1,204,600	1,150,000	1,313,700	1,478,600	1,397,300	1,657,500	1,835,100	1,728,300
TOTAL BOXBOARDS	3,722,900	3,838,800	3,838,400	4,178,700	4,472,500	4,627,900	4,586,000	5,430,800	5,664,000	5,435,100

### SUMMARY

Kraft Paperboard	1,859,900	1,916,000	1,976,200	2,032,600	2,419,500	2,816,500	3,081,800	3,789,600	4,132,800	4,198,800
All Other Paperboard	5,802,300	6,045,900	5,962,000	6,459,800	6,941,400	6,771,700	6,128,400	7,346,200	7,755,100	6,885,300
TOTAL PAPERBOARD	7,662,200	7,961,900	7,938,200	8,492,400	9,360,900	9,588,200	9,210,200	11,135,800	11,887,900	11,084,100

# Excludes Canadian Imports      16,800      9,200      8,300      40,000E      10,000E      40,000E      33,000E      30,000E      40,000E      82,500E

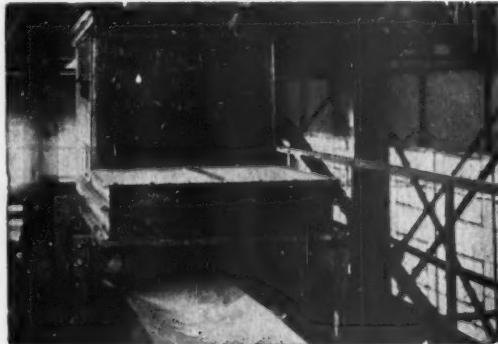
E - Estimated

\* 1943 - 1945 Estimated Analysis

\*\* 1943 - 1949 Special Food Board figures obtained from U.S. Department of Commerce. This tonnage formerly included in Folding and All Other Totals.

## THE ANSWER TO ACCURATE MILL CONTROL **MERRICK**

WEIGHTOMETER\*



For continuously weighing CHIPS, HOGGED FUEL and SULPHUR

FEEDOWEIGHT\*



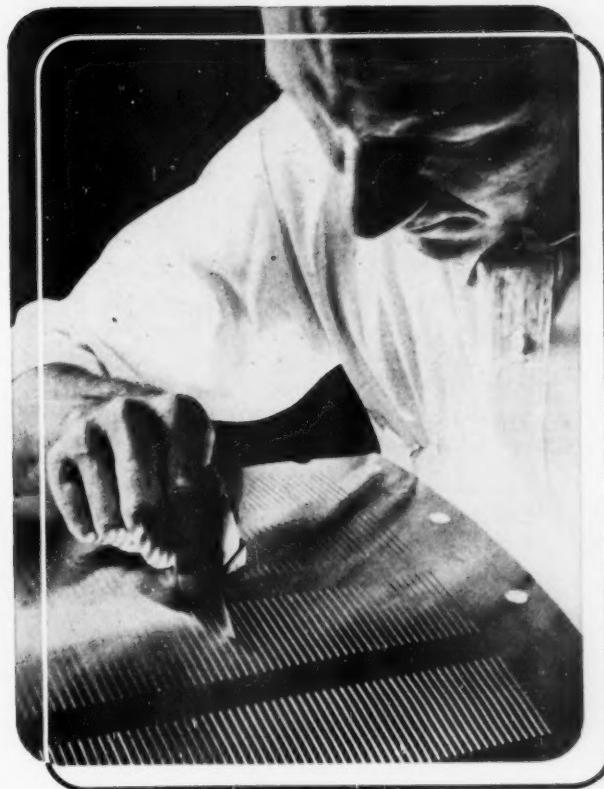
For feeding SALT CAKE and LIME at predetermined rate by weight.

ONLY MERRICK Makes the WEIGHTOMETER and FEEDOWEIGHT

**MERRICK SCALE MFG. CO. • Passaic, New Jersey**

IRVING R. GARD & CO., LOWMAN BLDG., SEATTLE 4, U. S. A.

\* Reg. U. S. Pat. Off.



Inspector gauges screen plate slot for precise .014 accuracy. Further microscopic examination double-checks careful fabrication at Union Screen Plate Company.

## how method plus material give screen plates longer life

It is advisable to place equipment orders as approved by N.P.A. with your supplier well in advance of scheduled use. Distributors of Inco Nickel Alloys can supply the latest information on availability from warehouse and mill.

It takes science's tools in craftsmen's hands to do the careful finishing that adds months to screen plate service life.

And it takes a screen plate metal that doesn't crumble away in corrosive mill stocks.

That's why Union Screen Plate Company checks and rechecks finishing operations with caliper, feeler gauge and microscope. And that's why they recommend Inconel when other metals are giving unsatisfactory service.

And why Inconel?

First, because Union's engineers have found that Inconel resists corrosion.

Inconel plates in one rag paper mill showed no measurable slot enlargement from corrosion after three years of service. Plates of other materials often gave trouble within a year.

Second, Inconel is strong. In some cases 3/16-inch screen plates of the usual metals have been replaced by Inconel two-thirds as thick!

Third, it is fatigue-resisting and withstands severe vibration and shock.

And fourth, Inconel means smoother plant operation. Because Inconel plates do not rust or pit, surface stays smooth . . . "strings" of fibers do not build up . . . there's less hand cleaning . . . fewer shut-downs or stoppages. Unvarying slot dimensions keep screening efficiency high, rejects at a minimum.

All in all, Inconel screen plates measure up to years of extra service . . . with less trouble . . . at lower yearly costs. For additional information about Inconel screen plates, write to the Union Screen Plate Co., Fitchburg, Mass.

THE INTERNATIONAL NICKEL COMPANY, INC.  
67 Wall Street, New York 5, N. Y.

### Inco Nickel Alloys

MONEL® • "R"® MONEL • "K"® MONEL  
"KR"® MONEL • "S"® MONEL • INCONEL® • INCONEL "X"®  
INCONEL "W"® • INCOLOY® • NIMONIC® ALLOYS • NICKEL  
LOW CARBON NICKEL • DURANICKEL®

### TYPICAL PULP PRICES IN THE UNITED STATES

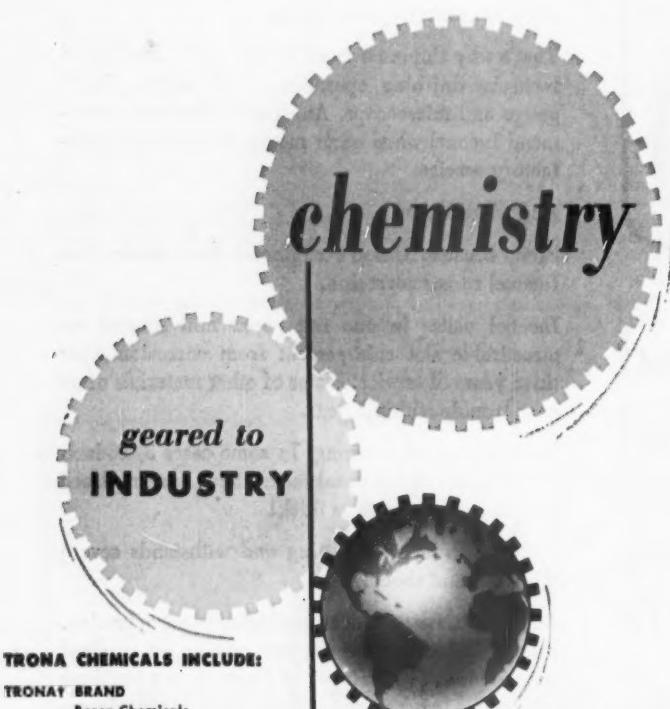
Before World War II—Under OPA Regulation (1944 and 1946 allowed increases are shown)—and in recent years. Specially prepared authentic table for this WORLD REVIEW.

Swedish and Norwegian prices are N.Y. Dock prices; U.S. and Canadian are "Delivered" and Maximum Freight Allowances are noted.

	Domestic Bleached Kraft	Canadian Bleached Kraft	Swedish Unbl'ched Kraft	Swedish Bleached Sulfite	Domestic Bleached Sulfite	Canadian Bleached Sulfite	Norway Unbl'ched Sulfite	Canada Unbl'ched Sulfite	Swedish Unbl'ched Sulfite
1939	—	—	\$28	\$43	\$50	—	—	—	\$36
1944	—	—	\$69	\$82	\$86	\$86	—	\$75	\$70
1946	—	—	\$79	\$91	\$94	\$94	—	\$82	\$79
Apr. 1949	\$136	\$136	\$112	\$132	\$126	\$130	\$125	\$118	\$122
June 1951	\$135 to \$200 (1)	\$195 (2)	\$225	\$250 to \$290	\$135 to \$165	\$160 (2) to \$175 (2)	\$250	—	\$225 to \$265
June 1952	\$142 (3) to \$167 (4)	\$190 to \$190 (1)	\$145 to \$150	\$175 to \$182.50	\$140 (3)	\$160 to \$165	\$175 to \$180	\$150	\$155 to \$160
May 1953	\$140 to \$147.50	\$145 to \$155	\$100 to \$125	\$130 to \$135	\$140	\$140 to \$145	\$140 to \$145	\$130 to \$135	\$110 to \$125

Maximum Freight Allowances:

(1) \$12.50 (2) \$7.50 (3) \$18.50 (4) \$15.00.



#### TRONA CHEMICALS INCLUDE:

**TRONAT BRAND**  
Boron Chemicals  
Bromine  
Lithium Chemicals  
Phosphoric Acid  
Potash  
Salt Coke  
Soda Ash  
Sodium Sulphate (Dessicated)

**THREE ELEPHANT® BRAND**  
Borax  
Boric Acid

\*Trade Mark Registered  
†Trade Mark American Potash & Chemical Corporation



#### MAKES THE WORLD GO 'ROUND

On our constantly revolving earth the wheels of progress grind ahead to new and wonderful developments for better living. Few men realize or stop to enumerate the countless invisible uses in industry for Trona Chemicals. Homes, clothing, food, automobiles, yes, even television sets are better because of minerals drawn from a dry lake created during the glacial age, in what is now California. Regardless of where they may live or what they may do, Trona Chemicals play a part in the life of every individual in these United States.

#### PROVED CHEMICALS FOR INDUSTRY AND AGRICULTURE

### American Potash & Chemical Corporation

Offices • 3030 West Sixth Street, Los Angeles 54, California

• 122 East 42nd Street, New York 17, New York

Plants • Trona and Los Angeles

### U. S. PRICES OF DISSOLVING WOOD PULP Dollars Per Short Ton

	Regular Tenacity Viscose	High Tenacity Viscose	Acetate & Cupra
1929	\$ 97.00		
1933	70.00		
JAN. 1938	97.50		
JAN. 1946	107.50	112.50	117.50
JAN. 1947	132.00	138.50	148.00
MAR. 1948	157.00	167.00	182.00
JUN. 1949	159.00	168.00	178.00
OCT. 1949	150.00	161.00	171.00
AUG. 1950	159.00	170.00	185.00
JAN. 1951	185.00	195.00	225.00
MAY 1952	185.00	195.00	225.00
MAY 1953	185.00	195.00	225.00

### U. S. PRICES OF COTTON LINTERS PULP Dollars Per Short Ton

	Annual Average	Low	High
1948	225	187.00	260.00
1949	172.00	160.00	187.00
1950	337.00	187.00	546.00
1951	459.00	316.00	554.00
1952	288.00	223.00	316.00
1953*	239.00	223.00	250.00

\* 4 months.  
U. S. Dept. Agric.—Regional Research Lab., New Orleans, La.

### U. S. WOODPULP EXPORTS

	Tons	Value
1930	48,426	\$ 2,070,553
1935	171,710	\$ 8,632,971
1939	139,504	\$ 6,493,140
1940	480,938	\$ 29,736,737
1943	300,700	\$ 20,288,879
1946	39,361	\$ 3,645,963
1949	122,133	\$ 14,082,575
1950	95,693	\$ 12,056,311
1951	182,861	\$ 39,112,079
1952	198,685	\$ 32,215,417

Source: U. S. Department of Commerce and U. S. Pulp Producers Assn.

### U. S. PULP IMPORTS

Year	Chemical Tons	Value	Ground-wood Tons	Value
1925	1,332,522	\$ 73,317,337	331,092	\$ 8,517,116
1930	1,530,985	\$ 73,962,977	299,256	\$ 7,146,290
1936	2,049,722	\$ 78,785,004	227,778	\$ 4,051,224
1940	1,053,057	\$ 55,474,094	170,909	\$ 4,712,649
1945	1,526,647	\$ 106,858,690	227,418	\$ 8,936,177
1947	2,016,153	\$ 238,126,318	290,514	\$ 18,032,673
1949	1,554,320	\$ 168,910,921	208,782	\$ 12,099,373
1950	2,098,667	\$ 224,358,923	286,508	\$ 15,802,832
1951	2,046,311	\$ 324,280,192	321,178	\$ 26,414,059
1952	1,693,726	\$ 252,803,232	242,006	\$ 18,242,571

Source: U. S. Pulp Producers Assn. and U. S. Dept. of Commerce.

### CONSUMPTION OF WASTE FIBROUS MATERIALS BY U. S. MILLS

(In Thousands of Tons)

	Waste Paper	Rags	Straw, Flax and Other	Total
1939	4,366	468	692	5,526
1944	6,859	428	957	8,245
1945	6,800	414	929	8,143
1946	7,278	403	980	8,660
1947	8,009	462	1,064	9,535
1948	7,649	425	1,075	9,149
1949	6,600	382	833	7,815
1950	7,956	442	998	9,395
1951	9,070	389	1,055	10,523
1952	7,881	325	871	9,007

Source: Pulp and Paper Sec., Forest Products Div., Office of Domestic Commerce and NPA, Pulp, Paper, and Paperboard Div.

**Photograph Paper Must Have Perfect Finish**

— And here is a Perkins 50" Nine-Roll Web Supercalender, made for Eastman Kodak Company finishing world famous photographic printing papers at high speed... Operating nip pressure 2,000 pounds per lineal inch at the bottom nip... five (5) Farrelloy chilled iron rolls, ground to a .5 micro-inch finish... four (4) Perkins cotton rolls... Timken roller bearings... gravity feed lubrication... hydraulic pressure... equipped with revolving reel for wind and unwind... Perkins semi-steel cast frame for rigidity... no vibration. Designed and built for tomorrow's high speeds and pressures.

**B. F. PERKINS & SON, Inc.**  
HOLYOKE, MASS., U.S.A.  
LARGEST MANUFACTURERS OF CALENDER ROLLS IN THE WORLD

### U.S. IMPORTS OF NORTH AMERICAN WOODPULP BY GRADES

(In Short Tons)

Includes: Canada, Newfoundland, Labrador, Mexico

	Bleached Sulfite			Sulfate			Groundwood			Total
	Paper Grades	Non-Paper Grades	Unbl'ch'd Sulfite	Bleached	Unbleached	Bleached	Unbleached	Soda		
1946	195,112	189,775	411,512	56,213	137,472		220,823	19,740	1,245,131	
1949	241,280	149,801	256,993	323,212	117,917	538	188,620	27,315	1,313,325	
1950	288,014	229,092	364,531	360,047	183,238	15,548	228,627	33,947	1,717,035	
1951	258,571	225,836	441,235	450,076	176,837	17,054	264,996	33,373	1,881,119	
1952	215,296	220,010	306,929	448,467	135,768	31,622	183,089	28,071	8,192	416,780
1953-3 mos.	49,675	55,806	58,516	112,295	74,052	58,244				

Source: Department of Commerce

### U. S. IMPORTS OF EUROPEAN WOODPULP BY GRADES

(Short Tons)

	Bleached Sulfite			Sulfate			Groundwood	Total*
	Paper Grades	Non-Paper Grades	Unbl'ch'd Sulfite	Bleached Sulfate	Unbl'ch'd Sulfate			
1946	27,541	12,417	207,059	23,484	260,434	29,399	560,334	
1949	90,008	4,145	135,229	68,397	130,897	19,065	449,218	
1950	115,020	8,262	163,975	86,548	257,160	34,618	668,146	
1951	90,991	3,923	122,639	71,484	158,736	34,746	484,201	
1952	59,774	3,317	125,623	70,568	72,103	27,529	359,138	
3 mos. 1953	30,302	1,568	39,212	36,201	34,397	11,076	153,160	

Source: Department of Commerce

\* Includes screenings and soda.

### U. S. WOODPULP IMPORTS FROM EUROPE

(In Short Tons)

	Sweden	Finland	Norway	Austria	Czech.	France	Ger.	Switz.	Total**
1945	672,261	0	0	0	0	0	0	0	672,261
1946	445,114	115,220	0	0	0	0	0	0	560,334
1947	555,215	223,973	9,577	0	0	0	0	0	793,693
1948	384,576	175,900	13,218	1,696	0	0	0	0	575,390
1949	265,621	148,903	29,208	4,459	1,027	0	0	0	449,218
1950	398,814	205,651	28,958	21,005	2,597	115	977	89	668,146
1951	257,061	182,618	36,365	3,225	512	106	2,812	89	482,801
1952	189,613	145,630	21,168	2,430	0	124	169	0	359,138
3 mos. 1953-91,439	45,461	11,790	3,807	0	75	588	0	0	153,160

\* The 1945 figure is for only 6 mos., when shipping reopened after the war.

\*\* Includes 15 tons from Denmark in 1951; 167 tons from Italy in 1950; 4,928 tons from Russia in 1947 and 9,773 tons from Russia in 1950; 4 tons from Australia in 1952.

### U. S. WOODPULP CAPACITIES

(Projected to 1953 by U. S. Pulp Producers Assn.)

Regions	Annual Capacity	
	Woodpulp—in tons	1953
New England	1,975,030	1,975,030
Middle Atlantic	1,307,549	1,307,549
Lake States	2,479,784	2,494,784
Pacific Coast	3,428,072	3,749,455
South	10,502,101	11,732,776
TOTAL U. S.	19,692,536	21,259,594
Grades	1953	1955
Dissolving	857,096	1,240,421
Sulfite (Paper)	2,607,505	2,607,505
Bleaching Capacity	1,942,957	1,942,957
Sulfate (Paper)	9,940,564	10,787,019
Bleaching Capacity	2,777,388	2,990,013
Soda & Semi-Chem.	1,984,341	2,126,161
Groundwood Bleaching Capacity	2,945,243	3,090,971
Other Non-Chemical	619,906	619,906
Screenings	72,975	83,705
Other Grades	2,807,311	2,959,861

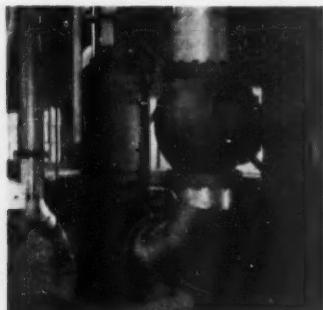
### U. S. PACIFIC COAST STATES PULP PRODUCTION

Tons of 2,000 lbs. (except defibrated, exploded, and similar pulps)

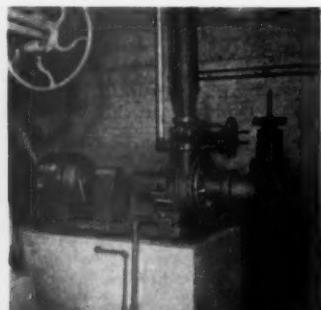
1923	299,596	1939	1,384,147
1926	378,005	1941	1,994,150
1929	780,494	1943	1,521,531
1931	817,548	1945	1,591,789
1932	607,662	1947	2,005,089
1933	773,102	1949	2,078,526
1935	1,011,421	1950	2,417,998
1937	1,523,191	1951	2,768,848
		1952	2,766,277

Source: U. S. Pulp Producers Assn., Inc.

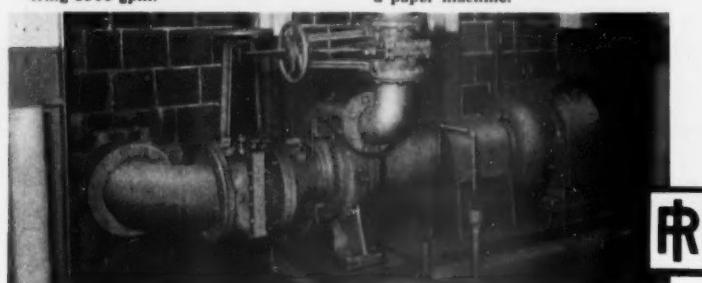
# STOCK PUMPS? YES!



A 24 APH single-stage vertical pump used as a fan pump, delivering 8500 gpm.



A 4 FGV stock pump handling 750 gpm of stock from the couch pit of a paper machine.



This 8 HGV pump transfers 3 1/2% stock from a beater dump chest to refineries at a southern mill.

Ingersoll-Rand's complete line offers an economical solution to every stock pumping problem

From white water to heaviest stock, there's an I-R pump that's specially designed for the job. Available in vertical and horizontal types, they are built to stand up longer under continuous, heavy-duty service. Maintenance, a perennial problem in paper stock pumps, has been reduced and simplified by features like these: large, open suction passages with hand-hole cleanouts—non-clogging impellers—rotors that can be removed without disturbing piping or driver—and interlocked stuffing box glands that are easy to adjust or remove.

The machine feed pump, with feeder propeller and suction take-off for constant delivery is a typical example of I-R special service pump design. Whatever your pump requirements, Ingersoll-Rand has the answer—backed by over 30 years of experience in the paper mill field. For further information, call your nearest I-R branch office.

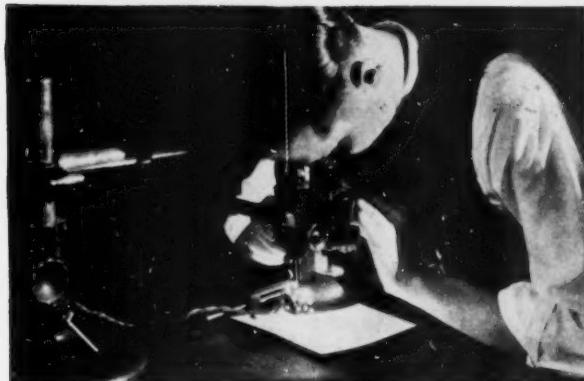
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Cameron Pump Division

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COMPRESSORS • PUMPS • CONDENSERS • VACUUM EQUIPMENT  
DIESEL ENGINES • AIR & ELECTRIC TOOLS

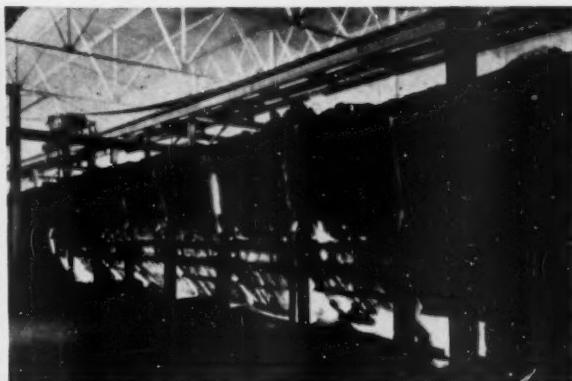
775-10

# It's a Manufactured Pulpstone . . .

*Precision Manufactured to Meet Your Requirements*



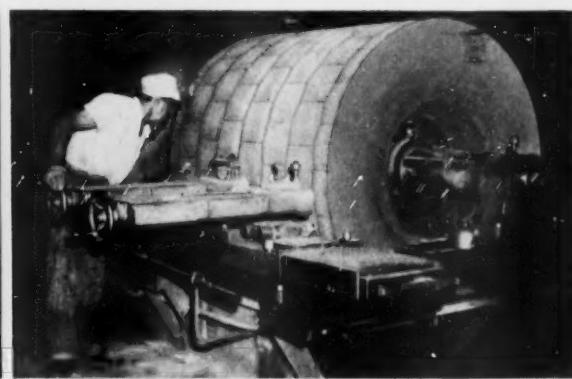
The Norton Research Laboratories play an important part—not only in continually improving the Norton Pulpstone but in the routine checking of materials quality.



From the Norton Electric Plants come the abrasives used in making the Norton Pulpstone—here you see a resistance type furnace producing CRYSTOLON abrasive.



The Most Modern Factory Equipment is used in making the Norton Pulpstone. Here a workman is weighing out the exact amount of abrasive and bond required for molding a segment.



Final Assembly of the Molded Segments is done by workmen long skilled in this exacting job. This is followed by careful truing of the completed stone in a gigantic lathe.

THE Norton Pulpstone is not an "artificial" stone—it is a real precision manufactured pulpstone—carefully engineered to meet your special requirements. First the abrasive is manufactured in the Norton electric furnace plant—from bauxite ore if it is an ALUNDUM stone or from silica sand and metallurgical coke if it is CRYSTOLON stone.

Then in the mile-long Norton Worcester plant, the world's largest grinding wheel plant, the abrasive is mixed with suitable bonds and molded into segments. After being kiln-fired the segments are assembled to form the final stone. Every step in the manufacturing process is under careful quality control and every element in your stone is exactly tailored to meet your particular requirements.

**NORTON COMPANY, WORCESTER 6, MASS.**  
Norton Company of Canada, Ltd., Hamilton, Ontario

*Making better products . . . to make other products better*

Abrasives - Grinding Wheels - Grinding and Lapping Machines - Refractories - Porous Mediums - Non-slip Floors - Nitride Products



**NORTON**  
**PULPSTONES**

**REGIONAL ORIGIN OF SALES OF DOMESTIC MARKET PULP IN U. S.**  
**All Grades Except Defibrated—Tons of 2,000 lbs.—Showing imported and domestic supply for consumers**

Year	Pacific	South	New England	Lake	Mid-Atlantic	Total U.S.	Mkt. Pulp Imports	Total Supply
1947 (Tons).....	727,135	227,770	218,451	96,705	69,732	1,339,793	1,883,157	3,222,950
1947 (Percent).....	22.6%	7.0%	6.7%	3.0%	2.1%	41.57%	58.43%	100%
1948 (Tons).....	801,842	230,744	188,527	95,559	60,920	1,377,592	1,739,120	3,116,712
1948 (Percent).....	25.2%	7.2%	5.84%	2.96%	1.08%	42.28%	57.72%	100%
1949 (Tons).....	751,267	184,482	165,815	59,801	45,526	1,206,891	1,304,326	2,511,217
1949 (Percent).....	29.9%	7.4%	6.6%	2.4%	1.8%	48.1%	51.9%	100%
1950 (Tons).....	888,957	312,490	217,496	79,665	60,201	1,558,809	1,910,917	3,469,726
1950 (Percent).....	25.6%	9.0%	6.3%	2.3%	1.7%	44.9%	55.1%	100%
1951 (Tons).....	922,006	408,417	212,446	84,547	72,912	1,700,328	1,831,718	3,532,046
1951 (Percent).....	26.1%	11.5%	6%	2.4%	2.1%	48.1%	51.9%	100%
1952 (Tons).....	856,855	434,772	203,910	69,588	43,412	1,608,537	1,397,126	3,005,663
1952 (Percent).....	28.5%	14.5%	6.8%	2.3%	1.4%	53.5%	46.5%	100%

Source: U. S. Pulp Producers Assn., Inc.

**TOTAL UNITED STATES PRODUCTION OF WOODPULP**

Year	Total	(Tons of 2,000 pounds)					
		Unbleached Sulfite	Bleached Sulfite	Total Sulfate (1)	Groundwood	Soda	All Other
1925.	3,962,217	790,510	612,576	409,768	1,612,019	472,647	64,897
1935.	4,925,669	634,947	944,620	1,467,749	1,355,819	417,724	104,810
1940.	8,959,559	995,700	1,612,089	3,747,992	1,632,727	532,387	438,664
1942.	10,783,430	1,213,066	1,717,206	4,738,266	1,869,862	462,065	782,965
1944.	10,108,443	862,928	1,523,221	4,548,810	1,769,287	412,755	991,442
1946.	10,606,527	784,391	1,692,077	4,588,016	1,951,456	476,211	1,114,376
1948.	12,872,292	901,814	1,909,402	6,013,696	2,175,107	509,864	1,362,409
1949.	12,171,786	707,263	1,829,021	5,977,281	1,960,496	492,194	1,205,531
1950.	14,807,575	740,895	2,107,541*	7,501,429	2,215,883	522,221	1,719,606
1951.	16,494,386	754,916	2,378,692*	8,576,298	2,476,635	446,483	1,861,362
1952**.	16,467,000	675,000	1,692,000	8,569,000	2,380,000	425,000	2,726,000

Source: U. S. Bureau of the Census.

Note: Through 1939, "exploded" wood pulp is included in Groundwood and thereafter in "All Other."

1933 through 1936 data on Soda are estimated from United States Bureau of the Census combined data for Soda and Semichemical pulp.

\* Includes dissolving grades of bleached sulfate.

(1) Total sulfate lists total for paper grades only.

\*\* Preliminary.

**LEADING WOODPULP STATES**

(In Short Tons)

State	1951*
WASHINGTON .....	2,053,094
LOUISIANA .....	1,489,000
MAINE .....	1,328,000
FLORIDA .....	1,318,349
GEORGIA .....	1,220,000
WISCONSIN .....	1,051,000

\* Latest available by U. S. Pulp Producers Assn., Inc.

**Canadian Staple Fiber Production and Imports**

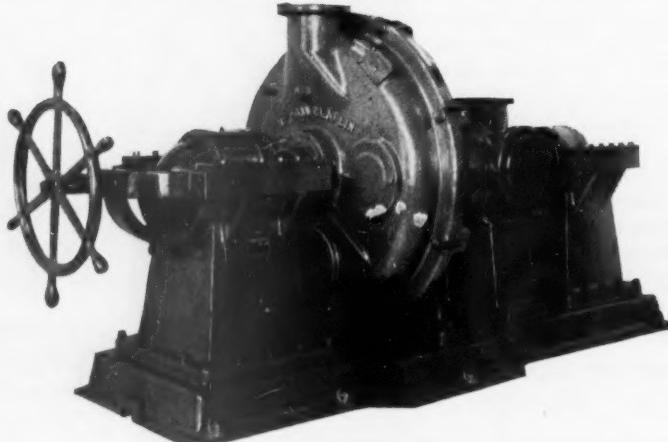
(in thousands of pounds)

Do-	Do-	Do-	Do-	Do-	Total
Viscose Acetate	Nylon	Delv-	Produc-	Produc-	
1939	—	—	—	—	2,701
1946	—	750	—	9,565	10,315
1949	2,084	2,050	1,000	11,131	16,265
1950	11,866	4,200	1,500	7,409	24,975
1951	10,220	4,600	1,750	18,736	35,306
1952	16,800	5,750	2,700	9,824	35,074

Source: Canadian Textile Journal.

# HERMANN Improved CLAFLIN

## "Continuous Beater & Refiner"



"Continuous"  
Beating-Refining  
Kraft Pulps for  
Multiwall Bag,  
Gumming & Kraft  
Specialties.  
Waxing Tissues  
Glassine & Grease-  
Proof Grades  
Facial Tissue  
Rag-Cotton Linters  
Deinked Stock  
Filler Stock  
Liner Stock  
"Cycling"

"Hot Brown Stock"  
Blow Tank to  
CLAFLIN direct  
to the Washers

"Asplund Fibre"  
.009 Corrugating

"Chemipulper"  
"Defibrator Stock"  
Roofing Felt

"Neutral Sulphite"  
.009 Corrugating

"Knott-Screen  
Rejects"

Straw-Bagasse

Four Size Units Including No. 0 For Laboratory-Test Purposes.

NOW AVAILABLE: NEW NO. 3 HEAVY DUTY UNIT WITH TANGENT HEAD-VOLUTE INLET.  
FOR DEFIBERIZING HOT BROWN STOCK. REQUIRES LESS THAN 1-H.P. PER TON.

**THE HERMANN MFG. CO. LANCASTER, OHIO**

*Huntington*  
**RUBBER MILLS Inc.**

35 W. LANDER ST., SEATTLE 4, WASH.

MAin 2166

**RUBBER COVERED ROLLS  
ENGINEERED TO YOUR REQUIREMENTS**

FOR RUBBER ROLL COVERING WE ARE  
LICENSED ON THE WEST COAST AND  
WESTERN CANADA BY STOWE-  
WOODWARD, INC., NEWTON UPPER  
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### UNITED STATES WOODPULP PRODUCTION—1951 vs. 1952

#### TOTAL WOODPULP, ALL GRADES

	1951	1952	% Change	1951	1952	% Change
Capacity	17,667,662	18,761,380	+6			
Production	16,524,408	16,460,999	-0.4	1,911,640	1,861,292	-3
Imports	2,360,706	1,936,652	-18	1,831,718	1,396,827	-24
Canada				1,347,517	1,037,689	-23
Europe				484,201	359,138	-26
Exports	201,908	211,942	+5	201,908	211,942	+5
New Supply	18,683,206	18,185,709	-3	3,541,450	3,046,177	-14
Consumption	18,526,970	18,026,344	-3	3,481,625	2,949,754	-15
In paper & board	17,736,970	17,266,344	-3	2,741,625	2,252,554	-18
In non-paper	790,000	760,000	-4	740,000	697,200	-6

### PULPWOOD STATISTICS

#### TOTAL FOR U. S.

##### Receipts—Consumption—Inventories

(In Thousands of Cords)

Yr.	Domestic	Imports	Total	Consum.	Yr. End
1941	14,177	2,281	16,458	16,580	3,729
1943	13,581	1,712	15,293	15,645	2,846
1945	15,254	1,729	16,983	16,912	2,627
1947	18,529	2,084	20,613	19,714	4,563
1949	17,547	1,706	19,252	19,916	4,877
1950	20,712	1,834	22,546	23,627	3,615
1951	25,128	2,650	27,778	26,522	5,072
1952	25,045	2,315	27,358	26,462	5,949

Source: Bureau of the Census; except 1941-1943, by War Production Board; 1951-52—NPA, Pulp, Paper & Board Div.

### APPALACHIAN AREA—PULPWOOD

##### Receipts—Consumption—Inventories

(In Thousands of Cords)

Yr.	Domestic	Imports	Total	Consum.	Yr. End
1941	1,378	34	1,412	1,420	439
1943	1,302	2	1,304	1,442	280
1945	1,365	23	1,388	1,444	206
1947	1,610	23	1,633	1,685	372
1949	1,548	—	1,548	1,614	335
1950	1,705	—	1,705	1,796	249
1951	1,960	—	1,960	1,859	367
1952	1,562	—	1,562	1,673	323

Source: Bureau of the Census; except 1941-1943, by War Production Board; 1951-52—NPA, Pulp, Paper & Board Div.

### LAKE STATES—PULPWOOD

##### Receipts—Consumption—Inventories

(In Thousands of Cords)

Yr.	Domestic	Imports	Total	Consum.	Yr. End
1941	1,561	680	2,241	2,398	995
1943	1,409	560	1,969	2,325	962
1945	1,954	502	2,456	2,544	986
1947	2,154	746	2,900	2,725	1,486
1949	1,609	552	2,160	9,251	670
1950	1,985	487	2,472	2,825	986
1951	2,622	803	3,425	3,039	1,380
1952	2,445	739	3,182	2,909	1,701

Source: Bureau of the Census; except 1941-1943, by War Production Board; 1951-52—NPA, Pulp, Paper & Board Div.

### SANDWELL AND COMPANY

#### LIMITED

#### CONSULTING ENGINEERS

VANCOUVER, CANADA

SEATTLE, WASH.

### Pacific Coast and Rocky Mts. Wood Survey

Periodic pulpwood surveys in Washington, Oregon, North Idaho and Montana have long been features of this Review Number. They deal with the leading pulpwood producing region for its size in the entire continent, and therefore are significant, and are prepared for PULP & PAPER by the Forest Economics divisions of the Pacific Northwest and Northern Rocky Mountain Forest and Range Experiment Stations of the U. S. Forest Service Portland, Ore., and Missoula, Mont.

The estimates of the cu. ft. volume of the pulp species in the Douglas-fir subregion of western Washington and western Oregon are based on Forest Survey inventories of the forest resources of the 38 counties in the subregion. The initial inventories of these counties were conducted in the period 1930-34. Between 1937 and 1952 reinventories were made of 35 of these counties; in addition a second reinventory has been made of the following 9 counties: Clatsop and Coos in Oregon, and Clark, Cowlitz, Grays Harbor, Lewis, Mason, Pacific, and Wahkiakum in Wash.

### U.S. PACIFIC COAST—PULPWOOD

##### Receipts—Consumption—Inventories

(In Thousands of Cords)

Yr.	Domestic	Imports	Total	Consum.	Yr. End
1941	2,585	332	2,918	3,019	732
1943	2,458	103	2,561	2,271	491
1945	2,470	126	2,596	2,472	420
1947	3,581	156	3,734	3,171	974
1949	3,015	148	3,162	3,199	1,031
1950	3,244	287	3,531	3,822	772
1951	4,565	261	4,826	4,490	1,070
1952	4,339	155	4,494	4,499	1,133

Source: Bureau of the Census; except 1941-1943, by War Production Board; 1951-52—NPA, Pulp, Paper & Board Div.

### NORTHEAST STATES—PULPWOOD

##### Receipts—Consumption—Inventories

(In Thousands of Cords)

Yr.	Domestic	Imports	Total	Consum.	Yr. End
1941	2,252	1,235	3,486	3,515	1,218
1943	1,906	1,047	2,954	3,265	820
1945	2,311	1,078	3,389	3,245	869
1947	2,970	1,140	4,110	3,740	1,440
1949	2,321	1,004	3,325	3,395	1,526
1950	2,235	1,060	3,295	3,701	1,051
1951	3,137	1,586	4,723	4,280	1,483
1952	3,319	1,422	4,740	4,051	1,937

Source: Bureau of the Census; except 1941-1943, by War Production Board; 1951-52—NPA, Pulp, Paper & Board Div.

### U.S. SOUTH—PULPWOOD

##### Receipts—Consumption—Inventories

(In Thousands of Cords)

Yr.	Domestic	Imports	Total	Consum.	Yr. End
1941	6,400	..	6,400	6,227	334
1943	6,505	..	6,505	6,342	293
1945	7,153	..	7,153	7,208	145
1947	8,227	..	8,227	8,395	291
1949	9,060	..	9,060	9,255	670
1950	11,543	..	11,543	11,480	753
1951	12,844	..	12,844	12,854	772
1952	13,381	..	13,381	13,330	856

Source: Bureau of the Census; except 1941-1943, by War Production Board; 1951-52—NPA, Pulp, Paper & Board Div.

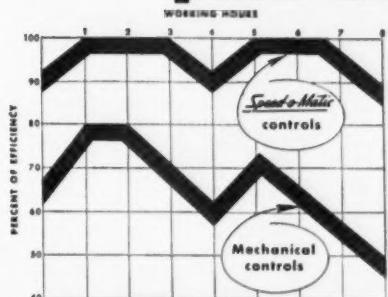
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# LOOK 'EM OVER!



This K-375 with 60 ft. boom and Independent Rapid Boom Hoist unloads incoming wood, stockpiles, and feeds conveyors.

**No other rig has *Speed-o-Matic*  
power-driven hydraulic controls!**



Speed-o-Matic controls, with their finger-tip operated levers, are responsible for the above startling evidence of how operator fatigue can be reduced.

SPED-O-MATIC controls not only reduce operator fatigue. They reduce wear and tear on the crane itself . . . require far less servicing than rigs with air, vacuum, manual or other control systems.

At the mill or in the woodlands Link-Belt Speeder's Speed-o-Matic controls provide fast, safe, positive, "feel the load" response . . . speed pulpwood handling . . . are fully operative with any front-end attachment.

For details on the complete line of crawler, truck and wheel-mounted shovel-crane . . . all their matchless work-speeding, cost-cutting advantages, ask your distributor or write for Catalog 2373.

**LINK-BELT SPEEDER CORPORATION**  
Cedar Rapids, Iowa

19,064

## LINK-BELT SPEEDER

C O R P O R A T I O N

BUILDERS OF A COMPLETE LINE OF CRAWLER, TRUCK AND  
WHEEL-MOUNTED SHOVEL-CRANES

FACTORY-TRAINED  
DISTRIBUTOR SALES  
AND SERVICE SPECIALISTS  
...EVERYWHERE

**PULPWOOD PRODUCTION STATISTICS FOR SOUTHERN STATES (In Cords)**

	Virginia	North Carolina	South Carolina	Georgia	Florida	Southeast Total
1946	971,000	709,000	1,002,000	1,143,000	865,000	4,711,000
1947	1,025,400	765,200	948,400	1,215,200	881,700	4,835,900
1948	1,306,500	926,200	1,108,500	1,770,600	1,221,200	6,330,000
1949	895,200	802,100	1,012,200	1,790,500	1,036,100	5,536,100
1950	1,044,147	1,024,005	1,182,413	2,221,279	1,384,694	6,856,538
1951	1,326,333	1,304,540	1,251,045	2,370,143	1,490,325	7,742,386
1952	1,069,129	1,332,303	1,275,698	2,513,272	1,583,341	7,773,743
	Oklahoma	Texas	Arkansas	Louisiana	Southeast Total	
1946	13,300	616,000	577,000	787,000	1,993,000	
1947	29,900	711,100	596,600	870,300	2,207,900	
1948	34,300	823,600	616,700	953,800	2,428,400	
1949	37,900	790,900	581,300	759,800	2,149,900	
1950	38,831	922,304	603,682	883,306	2,448,123	
1951	44,618	1,158,371	613,792	1,110,961	2,927,742	
1952	34,870	1,159,918	619,664	1,234,745	3,049,197	
	Tennessee	Mississippi	Alabama	Mid-South Total	All-South Total	
1946	135,000	1,238,000	756,000	2,130,000	8,844,000	
1947	141,300	1,279,100	777,700	2,198,100	9,241,900	
1948	181,700	1,433,900	981,900	2,597,500	11,358,900	
1949	158,100	1,167,700	911,300	2,237,100	9,923,100	
1950	143,958	1,665,863	1,321,204	3,131,025	12,435,686	
1951	191,415	1,793,376	1,406,207	3,390,998	14,061,126	
1952	268,438	1,861,388	1,608,609	3,738,435	14,561,375	

Note—Because of rounding, state figures may not add up to totals.

\* Latest years estimates gathered by PULP & PAPER. All other figures from Southern and Southeast Forest Experiment Stations of U. S. Forest Service.

**Pulp & Paper Presents New Figures on South's Wood**

Here are statistics as compiled by PULP & PAPER's Southern office especially for this issue, and brought up to date each year. The latest year's figures were gathered with cooperation of Southern Pulpwood Conservation Association and are preliminary. Preceding years are from Southern and Southeastern Forest Experiment Stations.

Total production in 12 Southern states is shown as 14,561,375 cords, an increase of 3.6 percent over 1951. Pine pulpwood totalled 12,782,646, an increase of 2.7 percent. Hardwood totalled 1,778,729, an increase of 9.9 percent, revealing the strong trend to hardwood use.

**Western Washington and Western Oregon Pulpwood Species, 1951**

Volume in millions of cubic feet<sup>1</sup> of pulpwood, other than Douglas-fir in western Oregon and western Washington available for cutting<sup>2</sup> by species.<sup>3</sup> (In addition to these species there are about 65 billion cu. ft. of Douglas-fir available in Douglas-fir subregion.)

Species	West. Oregon	West. Wash.	Total
Western hemlock	4,972	15,046	20,018
Sitka spruce	509	968	1,477
Balsam firs <sup>4</sup>	4,048	6,326	10,374
Mountain hemlock—			
Engelmann spruce	609	335	944
Black cottonwood	35	133	168
Total	10,173	22,808	32,981

<sup>1</sup> Includes all trees 4 inches and larger, diameter breast height.

<sup>2</sup> Excludes timber reserved from cutting in municipal, State, and Federal ownership.

<sup>3</sup> Compiled by Pacific Northwest Forest and Range Experiment Station from Forest Survey data adjusted for cutting depletion and growth to 1951.

<sup>4</sup> Includes Pacific silver fir, grand fir, noble fir, Shasta red fir, white fir, and alpine fir.

Western Oregon	Western Washington		
County	Million Cu. ft.	County	Million Cu. ft.
Benton	25	Clallam	2,434
Clackamas	1,140	Clark	44
Clatsop	1,012	Cowlitz	1,126
Columbia	28	Grays Harbor	3,171
Coos	777	Island	8
Curry	387	Jefferson	2,156
Douglas	1,554	King	2,011
Hood River	328	Kitsap	19
Jackson	815	Lewis	1,854
Josephine	72	Mason	441
Lane	1,212	Pacific	1,644
Lincoln	378	Pierce	1,025
Linn	1,123	San Juan	11
Marion	448	Skagit	1,541
Multnomah	127	Skamania	1,992
Polk	104	Snohomish	2,071
Tillamook	592	Thurston	18
Washington	36	Wahkiakum	376
Yamhill	15	Whatcom	868
Total	10,173	Total	22,808

<sup>1</sup> Includes all trees 4 inches and larger, diameter breast height.

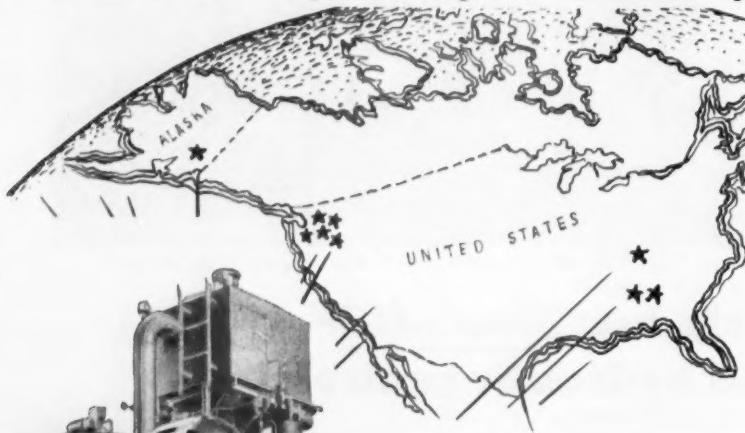
<sup>2</sup> Compiled by Pacific Northwest Forest and Range Experiment Station from Forest Survey data adjusted for cutting depletion and growth to 1951.

**STATE OF OREGON  
Pulp and Paper Payroll Data**

Year	No. of Payroll	No. of Employes
1932	\$1,896,692.09	1,681
1939	\$3,089,061.69	2,044
1945	\$7,948,596.83	2,945
1947	\$11,978,117.03	3,331
1949	\$13,618,780.00	3,405
1950	\$15,448,896.39	3,566
1951	\$17,938,786.96	3,888
1952	\$17,120,718.41	3,398

Source: Data from Oregon State Industrial Accident Commission plus information obtained from certain mills.

## WASHINGTON Pulp Baling Presses Chosen for High Output, Efficiency



IN INSTANCE after instance, among pulp mills newly built or expanded for increased production, Washington rapid traverse, automatic cycle control, 1000-ton hydraulic pulp baling presses have the consistent choice. As the sketch above indicates, Washington presses have been selected for outstanding installations extending over a continent-wide area.

Inquiries for either standard or special types of presses are invited.



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# WASHINGTON IRON WORKS

# STATISTICAL TABLES . . . 1953

## CANADIAN PULP AND PAPER INDUSTRY

### PRINCIPAL STATISTICS OF CANADIAN PULP AND PAPER INDUSTRY

Year	Establishments	Capital	Employees	Salaries and Wages	Fuel and electricity purchased	Materials and supplies used	Gross Value of products
	No.	\$	No.	\$	\$	\$	\$
1919.....	99	275,767,364	26,647	32,264,208	12,503,197	54,084,801	137,912,502
1925.....	114	460,397,772	28,031	38,560,905	17,506,735	76,514,990	193,092,937
1931.....	103	630,176,540	26,669	34,792,013	22,927,919	63,947,678	174,733,954
1937.....	98	570,352,287	33,205	48,757,795	29,121,065	91,121,629	226,244,711
1943.....	106	667,458,143	37,020	71,199,422	36,211,064	143,956,462	345,653,470
1948.....	117	1,100,000,000	51,924	151,662,761	41,365,665	274,553,791	825,857,664
1949.....	123	1,100,000,000	52,050	157,703,868	41,370,633	272,681,606	836,148,393
1950.....	124	1,150,000,000	52,343	169,246,531	44,440,376	289,548,301	954,137,651
1951.....	126	1,200,000,000	57,291	213,169,906	75,625,718	421,280,139	1,237,897,470
1952*....	127	1,330,000,000	58,000	220,000,000	80,000,000	425,000,000	1,250,000,000

\* Estimated.

### CANADIAN PULPWOOD

(In cords)

Year	Production	Consumption	Exports	Imports
1921.....	3,273,131	2,180,578	1,092,522	...
1925.....	5,092,461	3,668,959	1,423,502	
1930.....	5,977,183	4,741,349	1,330,466	94,632
1935.....	6,095,016	5,005,083	1,109,873	19,940
1940.....	8,499,922	6,996,119	1,551,429	47,626
1945.....	9,145,673	7,478,508	1,671,298	4,133
1946.....	10,523,256	8,684,756	1,855,381	16,881
1947.....	11,484,522	9,551,050	1,983,980	50,508
1948.....	12,497,926	10,256,549	2,317,346	75,969
1949.....	11,850,254	10,237,976	1,612,278	5,491
1950.....	12,873,476	11,138,578	1,734,898	28,220
1951.....	15,053,910	12,554,064	2,871,173	41,000
1952*....	14,400,000	11,700,000	2,500,000	26,000

Imports not reported prior to 1928.

Source: Dominion Bureau of Statistics.

\* Estimated by PULP & PAPER.

### CANADIAN WOODPULP PRODUCTION BY PROVINCES

(Quantity in Tons—Value in Dollars)

	Quebec	Ontario	British Columbia	Other Provinces	TOTAL
1945 Tons.....	2,887,176	1,468,682	520,571	724,385	5,600,841
1945 Value....	\$114,197,036	\$62,596,260	\$21,998,381	\$33,081,445	\$231,873,122
1948 Tons.....	3,902,072	2,226,124	688,209	858,674	7,674,079
1948 Value....	\$227,425,545	\$153,870,832	\$49,220,655	\$55,449,132	\$485,966,164
1949 Tons.....	3,698,401	2,138,444	666,542	1,349,611	7,852,998
1949 Value....	\$196,568,691	\$140,662,434	\$36,737,722	\$71,169,647	\$445,138,494
1950 Tons....	3,922,543	2,297,518	776,896	1,476,067	8,147,014
1950 Value....	\$216,299,900	\$156,390,753	\$49,381,923	\$80,511,349	\$502,583,925
1951 Tons....	4,282,568	2,484,551	924,154	1,623,576	9,314,849
1951 Value....	\$298,100,313	\$219,571,231	\$100,898,418	\$109,310,043	\$727,880,005
1952 Tons*....	4,100,000	2,300,000	1,000,000	1,500,000	8,900,000
1952 Value*....	\$385,000,000	\$250,000,000	\$67,000,000	\$130,000,000	\$832,000,000

\* Estimate by PULP & PAPER.

### CANADIAN PAPER PRODUCTION BY PROVINCES

(Quantity in Tons—Value in Dollars)

	Quebec	Ontario	British Columbia	Other Provinces	TOTAL
1945 Tons....	2,292,442	1,267,796	334,502	464,836	4,359,576
1945 Value....	\$148,180,691	\$86,395,223	\$20,353,984	\$27,907,716	\$282,837,614
1948 Tons....	3,240,623	1,837,510	425,104	560,409	6,063,646
1948 Value....	\$303,691,283	\$187,182,675	\$40,317,091	\$51,155,793	\$582,346,842
1949 Tons....	3,222,063	1,817,933	471,619	1,028,354	6,539,969
1949 Value....	\$310,752,857	\$189,616,876	\$46,478,981	\$94,611,124	\$641,459,838
1950 Tons....	3,315,631	1,903,721	498,286	1,094,397	6,812,035
1950 Value....	\$339,748,513	\$211,416,005	\$52,845,416	\$106,143,892	\$710,153,826
1951 Tons....	3,511,669	2,019,235	513,165	1,181,202	7,225,271
1951 Value....	\$389,554,493	\$251,918,611	\$59,763,061	\$122,793,484	\$824,029,649
1952 Tons*....	3,500,000	2,000,000	525,000	1,000,000	7,025,000
1952 Value*....	\$285,000,000	\$212,000,000	\$105,000,000	\$98,000,000	\$700,000,000

Source: Dominion Bureau of Statistics.

\* Estimate by PULP & PAPER.

### PULPWOOD PRODUCTION FOR CANADA BY PROVINCES

	1951	1952*
Quebec:		
Cords .....	7,099,215	6,800,000
Value .....	\$186,312,719	\$190,000,000
Ontario:		
Cords .....	3,706,147	3,650,000
Value .....	\$87,117,822	\$90,000,000
British Columbia:		
Cords .....	860,016	850,000
Value .....	\$28,184,354	\$30,000,000
Other provinces:		
Cords .....	3,388,532	3,200,000
Value .....	\$80,305,951	\$85,000,000
All Canada		
Cords .....	15,053,910	14,500,000
Value .....	\$381,920,846	\$405,000,000

\* Estimate by PULP & PAPER.

### EASTERN CANADIAN PULPWOOD PRODUCTION

(East of Rockies, including Newfoundland)

Wood-Year	Cords
1939-40.....	6,350,000
1946-47.....	9,324,000
1947-48.....	11,162,000
1948-49.....	8,840,000
1949-50.....	11,550,254
1950-51.....	12,873,476
1951-52.....	14,193,894
1952-53*....	14,000,000

\* Estimated

Source: Canadian Pulp and Paper Association

### CANADA'S PULP EXPORTS

	Tons	Value
1921.....	527,222	\$33,133,675
1926.....	1,003,081	52,077,122
1932.....	452,292	18,930,065
1937.....	870,711	41,815,731
1942.....	1,510,727	95,266,873
1947.....	1,698,712	177,802,612
1948.....	1,796,998	211,564,384
1949.....	1,546,198	170,675,310
1950.....	1,846,143	208,555,549
1951.....	2,260,834	365,132,884
1952.....	1,898,000*	300,000,000**

Source: Canadian Dominion Bureau of Statistics.

\* Canadian Pulp and Paper Association.

\*\* Estimated by PULP & PAPER.

### CANADIAN NEWSPRINT CAPACITY AND PRODUCTION

	Rated Capacity	Idle Capacity	Operating %
1925.....	1,715	193	88.8
1930.....	3,600	1,096	69.6
1935.....	3,914	1,163	70.3
1940.....	4,368	949	78.3
1945.....	4,301	1,042	75.8
1947.....	4,350	nil	101.1
1948.....	4,478	nil	102.2
1949.....	5,113	nil	101.2
1950.....	5,227	nil	100.9
1951.....	5,360	nil	100.7
1952.....	5,540	nil	102.6
1953*....	5,700	nil	100.

Source: Newsprint Association of Canada; 1949-1950 NAC estimates from company reports; including Newfoundland, beginning in 1949.

\* Estimate by Newsprint Association of Canada.

## CANADA—PULP PRODUCTION

(Tons of 2,000 lbs.)			
Mechanical Tons	Sulfite Tons	Alkaline Tons	Total Tons
1920. 1,090,114	654,273	188,487	1,922,774
1925. 1,621,917	842,785	242,207	2,706,909
1930. 2,283,130	1,076,804	188,253	3,548,187
1935. 2,458,000	1,025,000	206,000	3,689,000
1940. 3,305,484	1,480,545	399,267	5,290,762
1945. 3,341,920	1,639,684	478,740	5,460,344
1946. 3,997,848	1,830,017	562,233	6,390,098
1947. 4,275,269	2,027,532	689,435	6,992,236
1948. 4,413,513	2,138,011	815,076	7,366,600
1949. 4,718,806	1,991,459	855,784	7,566,049
1950. 4,910,803	2,110,773	1,053,588	8,075,164
1951. 5,125,043	2,533,481	1,463,705	9,122,229
1952. 5,102,000	2,367,000	1,331,000	8,800,000

Dominion Bureau of Statistics and Canadian Pulp and Paper Association.

## MILL LOCATIONS

	Pulp Mills	Pulp & Paper Mills	Paper Mills	Total
Newfoundland	1	2	..	3
Nova Scotia	2	2	..	4
New Brunswick	5	3	..	8
Quebec	13	32	10	55
Ontario	9	18	17	44
Manitoba	..	2	..	2
British Columbia	4	4	2	10
Canada	34	63	26	126

Note: There are three mills in Newfoundland

Source: Dominion Bureau of Statistics

## CANADA'S FOREST RESOURCES—A NEW SURVEY—Merchantable and Accessible

### Saw Timber (10" D.B.H. and Up)—in Millions of Feet Board Measure

	Prince Edward Island	Nova Scotia	New Bruns'ck	Quebec	Ontario	Manitoba	Saskat-chewan	Alberta	British Columbia Coast	British Columbia Interior	All Canada
Softwood	3,127	65	4,849	5,000	38,181	42,775	815	580	7,000	76,108	33,630
Hardwood	—	40	1,261	1,500	14,019	11,529	1,630	1,010	2,080	—	33,069
Total All Species	3,127	105	6,110	6,500	52,200	54,304	2,445	1,590	9,080	76,108	33,630
<b>Smaller Material (4" D.B.H.) in Thousands of Cords</b>											
Softwood	31,902	560	23,167	60,000	450,495	261,515	9,900	3,200	74,400	13,922	172,364
Hardwood	—	240	5,363	30,000	176,108	300,380	19,090	50,130	36,000	—	617,311
Total All Species	31,902	800	28,530	90,000	626,503	561,895	28,990	53,330	110,400	13,922	172,364
j											
* British Columbia forests contain considerable quantities of hardwood, but no complete inventory has yet been made. Survey now being carried out is expected to be finished in 1955. Source: Dominion Forest Service.											

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# EXCLUSIVE FOOD PACKAGING REPORT

## U. S. PROCESSED FOOD PACKS\*

	Canned Foods (Million Cases)	Glassed Foods (Million Cases)	Dried Foods Fruits, (Million tons) Vegetables and Nuts	Eggs, Milk	Frozen Foods (Million Pounds)	
	Fruits, Juices, All Other Vegetables	Canned			Fruits, Juices, Vegetables	Eggs, Fish, Specialties
1936	173	136	79	1,227	122	92
1939	191	160	85	1,529	151	213
1941	264	223	114	1,675	229	319
1943	284	180	188	2,390	455	496
1945	321	235	233	1,672	483	749
1946	370	235	235	1,762	484	985
1947	311	244	240	1,879	464	729
1948	300	255	207	1,909	448	1,041
1949	308	245	186	1,891	568	1,171
1950	328	256	225	1,492	549	1,412
1951*	371	266	230	1,792	430	1,572
1952**	346	261	245	1,658	460	1,785
						720

\*Source: WESTERN CANNER & PACKER, Miller Freeman Publication, affiliated with PULP & PAPER.

\*\*Preliminary.

EXTENSIVE USE of fiber cases, cartons and films in 1952 continued to make the United States processed food industry a major consumer of the products of the pulp and paper industries. The following is an annual exclusive feature of this WORLD REVIEW NUMBER, prepared by Western Canner and Packer, a Miller Freeman publication and a companion journal of PULP & PAPER:

As predicted last year in this report, U.S. production of canned, dried, frozen and glassed foods turned downward in 1952, after reaching a postwar high point in 1951. However, the output remained far above the average level achieved before the start of World War II.

Seasonal canned items—fruits, vegetables and juices—showed a 1952 pack about 6% below that of the previous season. Other canned packs—meats, fish, and poultry, milk, baby foods, etc.—experienced a smaller decline of only 2%. Glassed food output, contrary to the general trend, was up 7%.

Seasonal dried foods—fruits, vegetables and nuts—fell off 7% last year. The non-seasonal dried products showed a mixed trend, eggs and whole milk declining while non fat dry milk solids gained. Seasonal frozen fruits, vegetables and juices reached a new high level, the major up-swing being in citrus concentrates. Non-seasonal frozen packs—eggs, fish, specialties—were slightly smaller.

The food industry's consumption of paper products showed a close correlation with these production statistics. A slightly higher proportion of the seasonal frozen products went into cans instead of fiber, due to the further growth of citrus products and to a moderate swing to tin on the part of certain of the frozen fruits. A limited gain in the use of fiber cartons for dried foods tended to compensate for this factor, as did also some growth in the practice of packing fewer cans of canned food to the case, thereby requiring more cases to contain the pack.

Production of processed foods in 1953 is expected to be very similar to that of 1952. Some small declines are expected in certain of the canned products, and in a few of the glassed items. Dried food output is likely to remain about at the 1952 level. Frozen food packs also should approximate the 1952 volume, as the citrus

products field begins to level out after its period of sharp increase.

Details of the production of processed foods in 1952, and similar data for earlier seasons, are found in the accompanying table.

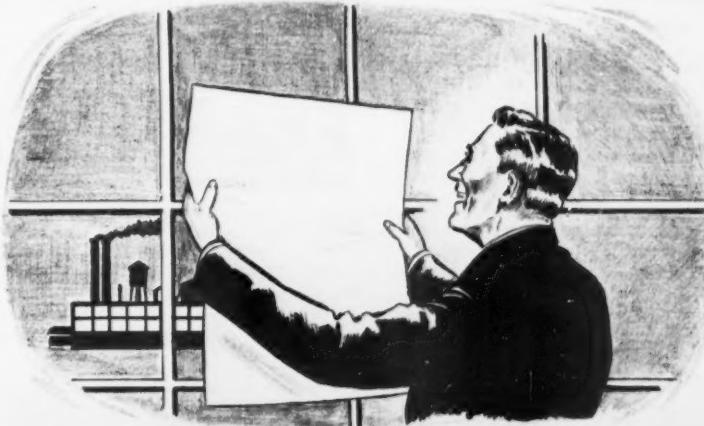
## Europeans Up Output With Control Devices

Europe's industries have taken a cue from the trend in America and are boosting their productivity through greatly increased use of instrumentation and automatic control equipment. Henry F. Dever, president of Brown Instruments Division of Minneapolis-Honeywell Regulator Co., returning from a tour, estimated use of such equipment in Great Britain and on the continent has increased by at least 50 percent since World War II.

To help meet the growing demand, Honeywell is boosting the production of automatic control equipment at its factory at Blantyre, Scotland, and also is expanding its service facilities throughout the European countries, Dever said.

## Record in Australia

Production for pulp, paper and cardboard by Australian Paper Manufacturers Ltd., of Melbourne, passed 200,000 tons for the first time in the company's history, the managing director, Mr. C. S. Booth, told shareholders recently. The increase was 10 per cent for pulp and eight per cent for other products.



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**BRONXVILLE 8, NEW YORK**

## DELEGATES TO ROME OPTIMISTIC OVER TROPICAL PULP-PAPER OUTLOOK



MORE THAN 30 PULP AND PAPER SPECIALISTS from United States, Canada, Britain, Sweden, India, Belgium, Netherlands, France, Italy, Brazil, etc.—including research institute chiefs from these countries—gathered in Rome in December 1952 to appraise the feasibility and cost of making pulp and paper from tropical and sub-tropical woods and agricultural residues. Their report was optimistic and they agreed future world needs can be met, but costs will be higher than in northern climes for chemicals, power, transport and plants. This may be offset by cheaper wood and labor. Here are the participants:

Front row seated, from left to right: G. Jayne, E. C. Lathrop, G. H. Chidester, Vance P. Edwards, H. Mueller-Clemm.

Second row: D. J. MacLaurin, E. Kruger, J. J. Williamson-Roussel, H. W. Giertz, G. Consiglio, H. Gearson, R. Petéri, J. Michen, J. R. Furlong, Mrs. A. Helbling, W. O. Hisey, K. A. Forrest, A. Aten, J. A. Hall, F. Muller, E. Höglund, R. Schepp, B. Steenberg, W. Barbour, R. Duckelmann, H. Baars, R. O. Runkel, A. Sundelin, A. Villiere, E. Moerath, G. Centola, E. Castagne, G. Welsh.



Back row: Egon Glesinger, Miss T. Gottlieb, G. H. Tomlison, P. Terver, R. V. Bhat. Also present were Dr. W. E. Cohen, Professor L. Rys and Prof. J. Savard, though they do not appear in the photograph.

AT RIGHT, below picture of the delegates, is the UNITED NATIONS BUILDING, in Rome, Italy, where the Pulp and Paper Conference, under auspices of the League Food and Agricultural Organization (FAO) was held in December.

### 30 CARLOADS OF WOOD HANDLED EACH 8-HOUR SHIFT

Here's the way to speed your work and cut costs of unloading, stacking and rehandling pulpwood and logs. Blaw-Knox Pulpwood Grapples, like this one shown handling 30 carloads of wood on an 8-hour shift, are especially designed and built in a wide variety of sizes and types to meet the exacting needs of the Paper Industry.

#### MORE AND MORE PULP AND PAPER COMPANIES ARE USING BLAW-KNOX PULPWOOD GRAPPLIES

34 leading pulp and paper companies have recently placed repeat orders for Blaw-Knox Pulpwood Grapples. Bulletin 2302 tells why—actual on-the-job illustrations show how others are cutting rehandling costs. Send for your copy of Bulletin 2302 today!



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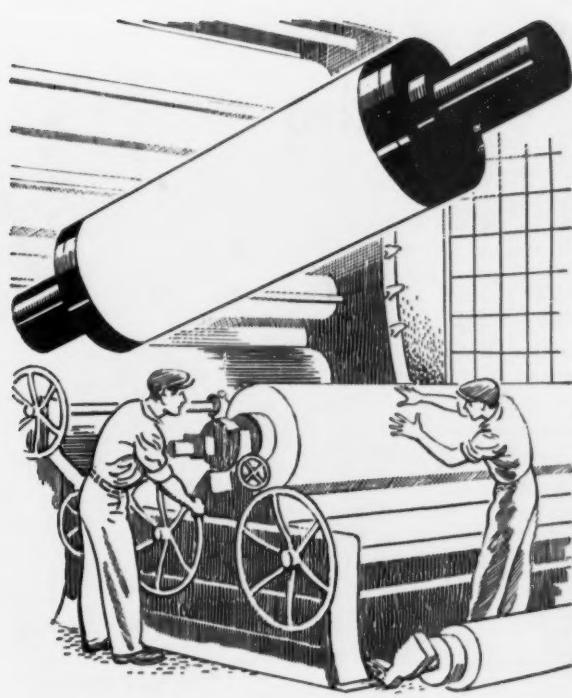
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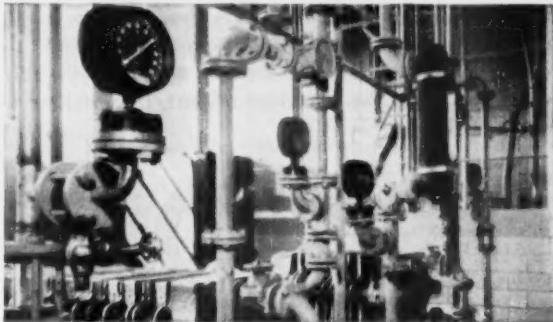
1953 Review Number

PULP & PAPER

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## SARAN LINED PIPE SERVICES FILTER PRESS INSTALLATION

This Saran lined piping handles a carbon slurry of an organic acid solution



A large midwest corn processor required piping suitable for handling a carbon slurry of an organic acid solution to and from filter presses in a new pilot plant. Saran lined pipe, fittings and valves were the company's choice for the following reasons: Saran lined pipe, fittings and valves assure tight, leak-proof joints. The excellent corrosion resistance of strong, rigid saran lined pipe assures a maximum service life and a minimum of down time. Saran lined steel pipe can be delivered immediately, cut and threaded to your specifications, or fabricated in the field without special tools.

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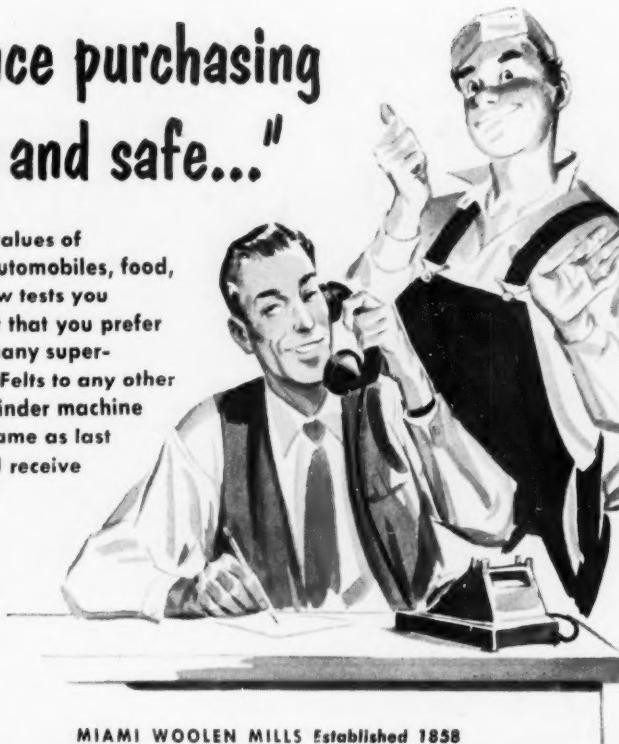
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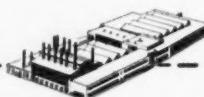
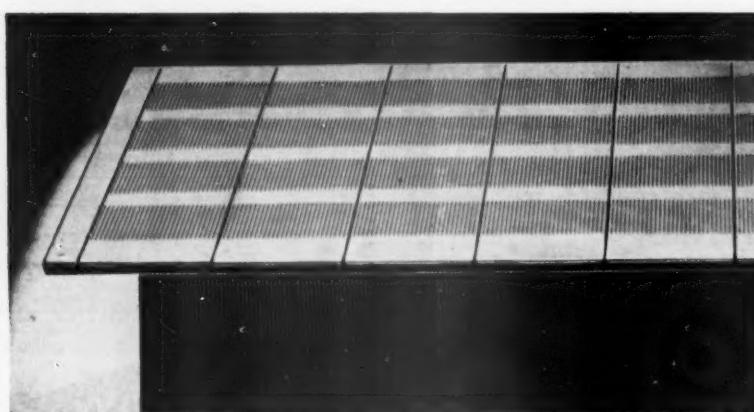
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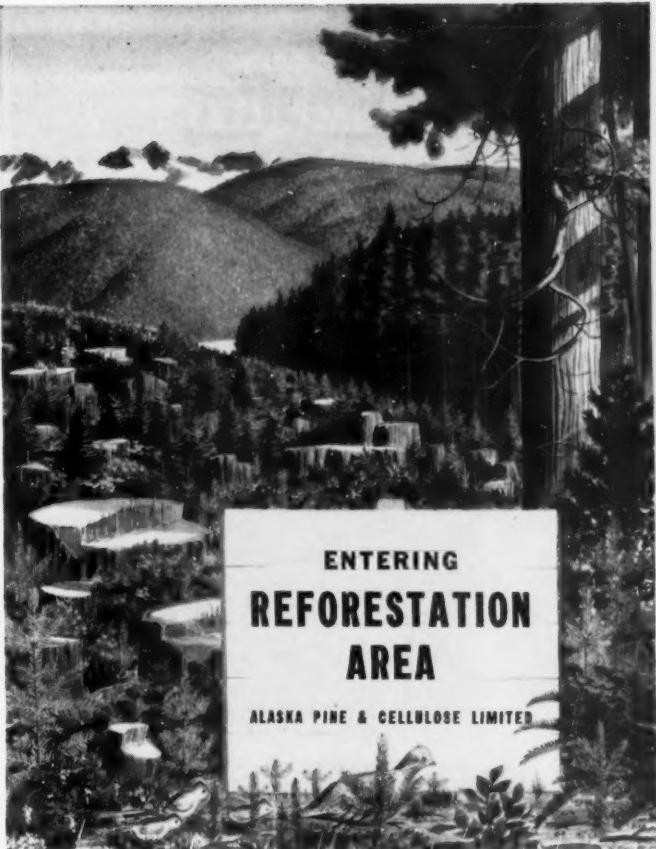


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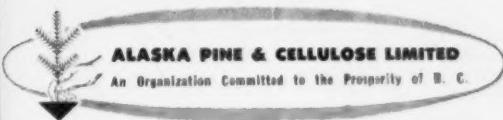
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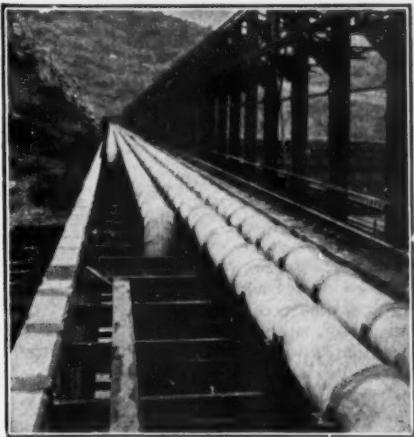
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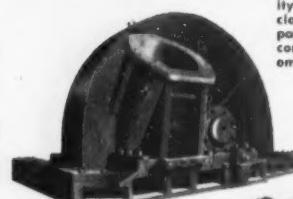
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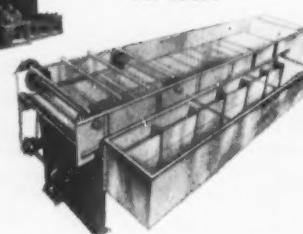
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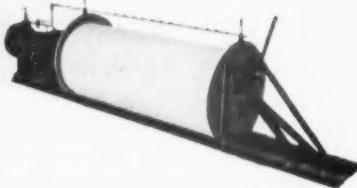
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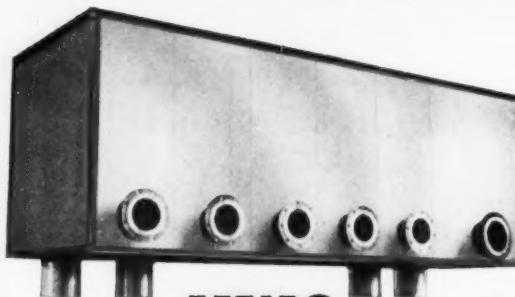
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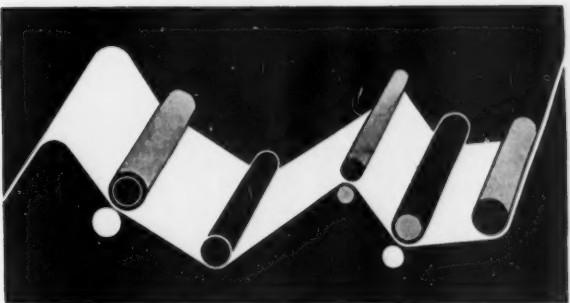
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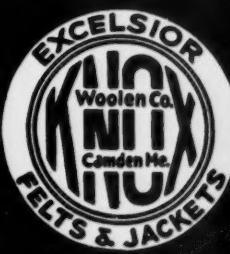
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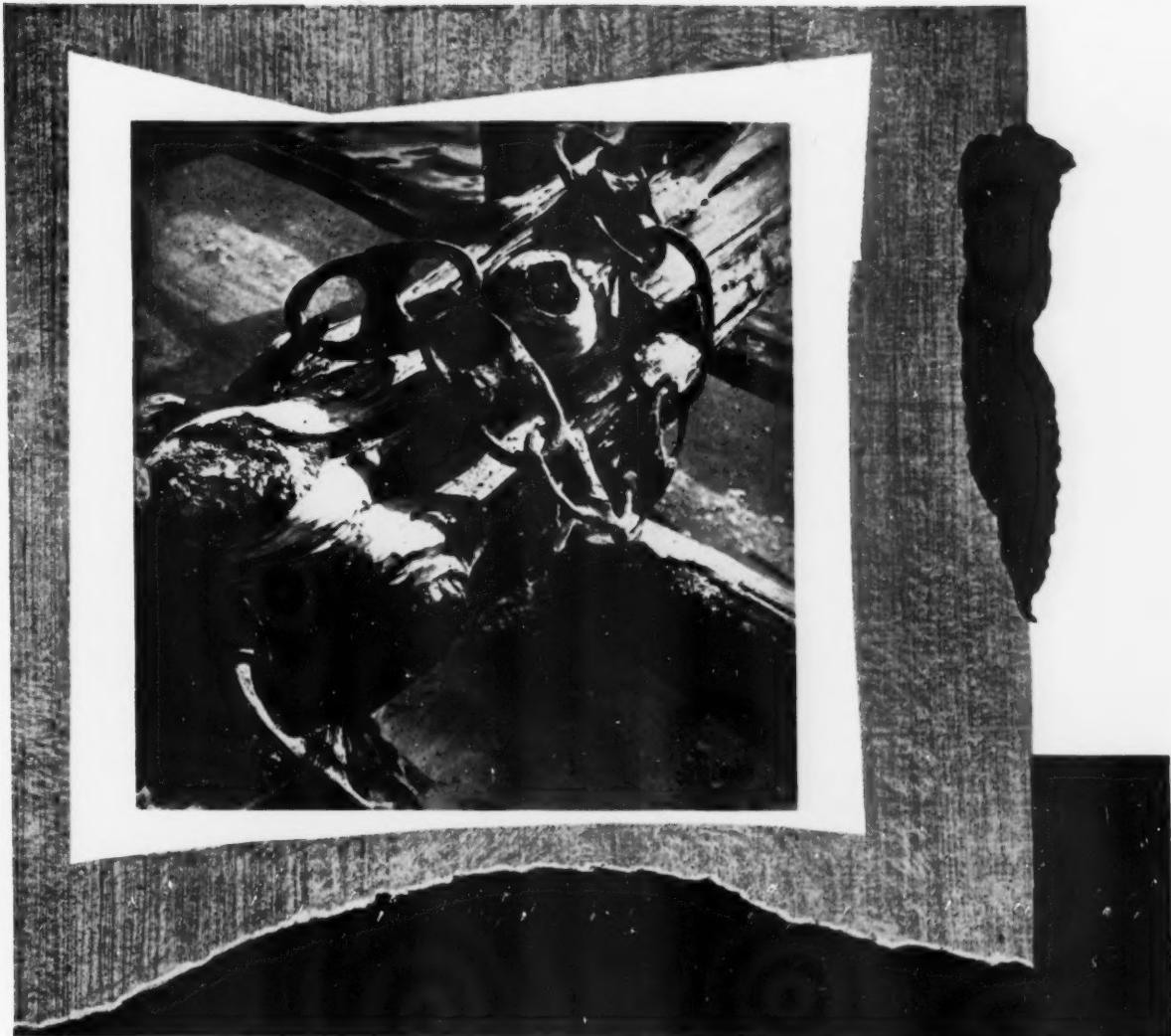
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NOTHING IS CONSTANT BUT CHANGE

ARE YOU PREPARED TO MEET IT PROFITABLY



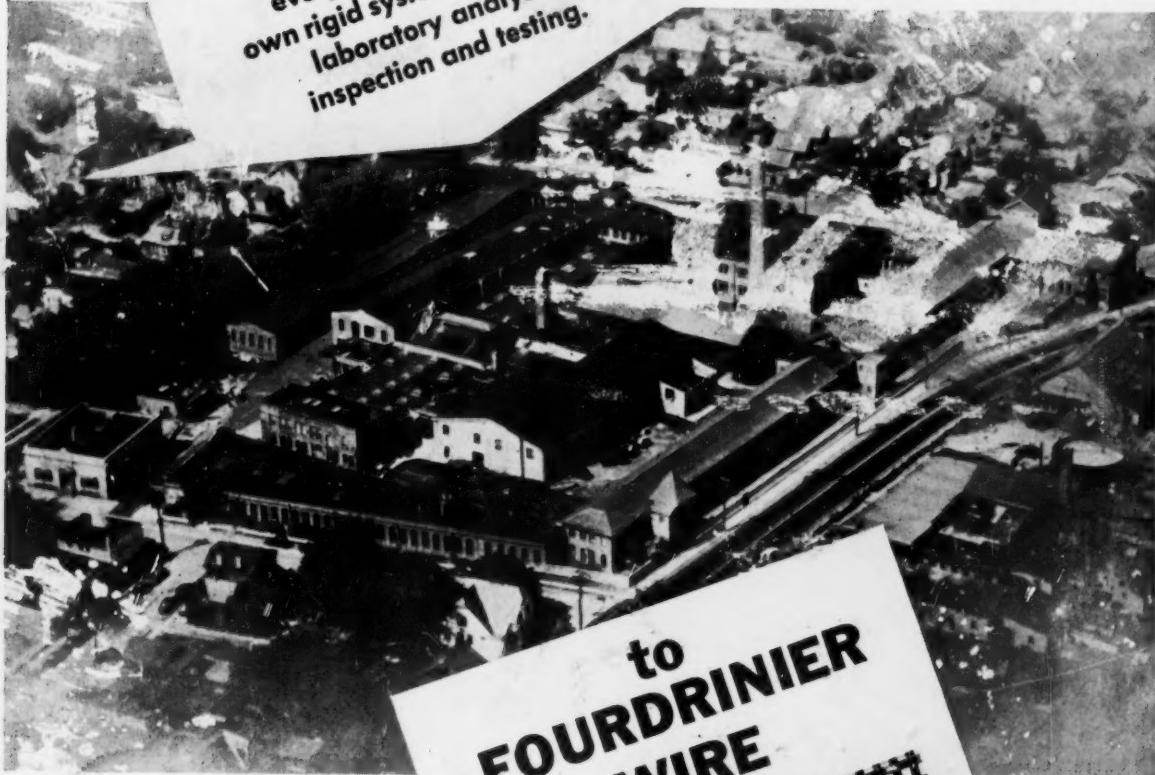
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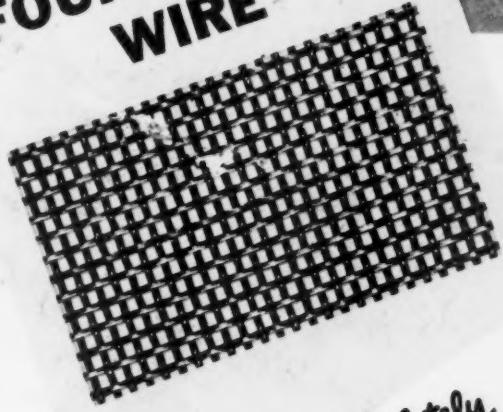
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laboratory analysis,  
inspection and testing.



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FOURDRINIER  
WIRE**



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